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A PHOTOGRAPHIC RECORD OF SELECTED INDUSTRIES  
OF BOX ELDER COUNTY

by

Robert E. Jensen

A thesis submitted in partial fulfillment  
of the requirements for the degree

of

MASTER OF SCIENCE

in

Industrial and Technical Education

UTAH STATE UNIVERSITY  
Logan, Utah

1967



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Robert E. Jensen

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## ABSTRACT

### A Photographic Record of Selected Industries of Box Elder County

by

Robert E. Jensen, Master of Science

Utah State University, 1967

Major Professor: Dr. William E. Mortimer  
Department: Industrial and Technical Education

This thesis is primarily a photographic study of past and present industries of Box Elder County, Utah. A variety of industries have been established in this county since it was first settled in 1851. This study illustrates the varying degrees of growth and recession of industries within the county and also depicts the many changes in industry over the past century.

The main purpose of the study was to gather photographs and pertinent information concerning the major industries of the county. It was proposed that this material would be useful to industrial arts teachers in their responsibility of presenting industry to the students in their classes. Others interested in industry would also benefit from the study.

Research was done to find photographs and information in the major areas of Minerals, Manufacturing, Electric Light and Power, Transportation, and Communication. A total of 128 photographs are presented, some dating back as far as the 1860's when early industries were comparatively new.

## INTRODUCTION

Box Elder County has been the host of many varied and interesting industries. From the high mountain valleys to the arid deserts, industries have been born, lived useful and sometimes exciting lives and then passed away. Some have lived on, to produce more and better goods or services, and are thriving concerns today, such as sugar refining, flour milling, railroads, mineral exploration and recovery, to name but a few. Today it is possible to see the fiery blast, and hear the awesome roar of solid propellant rocket motors as they develop up to one and a half million pounds of thrust.

### Statement of the Problem

A history of Box Elder County has been written and was published in 1938 by the Box Elder Chapter of the Daughters of Utah Pioneers and contains many interesting writings on early day industries; however, only a few photographs are found within its pages. Another work was found that paralleled this one to a certain extent. This was the history of the Brigham City Fourth Ward, entitled "Through the Years." It was written by a number of contributing writers from this area and is indeed a valuable historical document. Though historical writings of Box Elder County were found, which provided some of the needed resource material, a richly illustrated account of industry could not be found.

Industry has undergone rapid growth and development during the

past century. An understanding and appreciation of the past provides a foundation on which to build the future. The students enrolled in school today will build our industrial tomorrow and therefore should have an understanding of how industries near at hand had their beginnings and the factors that contributed to their success or failure.

Many of the old buildings are disappearing one by one, victims of fire, the relentless pounding of the elements, or to make way for new structures. Photographs of the old industries seem to gradually meet the same fate as the heritage they try to preserve. They are consumed by fire, ruined by flood, faded by time and dust, or thoughtlessly discarded by their owners.

Specifically state, then, the problem existed of bringing together all available photographs of past industries as well as gathering photographs of current industries to be brought together into one volume for their preservation and use by those concerned with the industrial past of Box Elder County.

### Purposes of the Study

The objectives of this work could be stated in the following manner:

1. It was proposed that through this study, a photographic record of selected industries of Box Elder County, past and present, would be brought together as completely as possible.
2. Interesting and pertinent findings concerning these industries, as obtained by research, would be recorded.
3. The photographic record would be developed so as to be useful

in an industrial arts program at the secondary level.

### Sources of Data and Method of Study

In proceeding with this work, a thorough study of all pertinent literature was made. Photographs and information were collected by contacting industrial concerns currently operating and people who had been associated with firms no longer in operation. Other rich sources included the files of the local newspapers, professional photographers and the Utah Historical Society. Some photographs and information were found among relatives and descendants of those who were associated with early industries. Photographs of current industries, and photographic copies of old or rare photographs, were taken or reproduced by the writer.

Many miles were traveled to gether the photographs and information presented here. One trip alone, to the Vipont mines in the northwest corner of the county and the tungsten workings near Lucin, covered 413 miles. The old Central Pacific railroad grade was traveled by Jeep continuously from Promontory Summit to Lucin, through the ghost remains of Kelton and Terrace, once thriving communities along the old railroad. All that is left standing in these once prosperous communities is some of the grave stones in their bleak cemeteries.

When the study was begun, considerable thought was given as to how the problem could be approached in an organized, efficient manner. The two forms (Calendar of Searches and Work Sheet) shown in Appendix B were developed at that time and proved to be of great value as the work proceeded. These are adaptations of forms often used in research.

As contracts were made the need for a calling card became apparent. This was used to remind people contacted of the study in progress and give them the name, address, and telephone number of the writer so he could be contacted if any information or old photographs were found.

The Utah State University Library and the Brigham City Public Library were searched and provided much interesting information. Most issues of the "Bugler" (a weekly newspaper published in Brigham City in the 1890's) are available in the Brigham City Public Library and provide a vivid insight into the "City of Homes" during the 1890's.

The writer visited many of the senior citizens of the county who were known to have been associated with early industries or who were descendants of those who were employed by early industries. These visits were often very rewarding as the "old timers" would tell of their experiences and bring to life the happenings of the past. Some of these interviews should have been preserved by tape recording.

Special permission was obtained from the Graduate Office to deviate from the standard 1 inch margin requirement in printing the photographs in order that photographs of unusual proportions could be printed and also to more efficiently utilize the photographic space.

#### Limitations of the Study

As this study was undertaken, it soon became apparent that time would be a real limiting factor. Each industry became a great challenge and often times continued search would fail to produce a single photograph. Most of the research was done during the months of June, July,

August, and September of 1966 and the writing was done the following fall and winter.

This study was limited to the geographic boundaries of Box Elder County. Occasionally a photograph was used that was taken outside of the county if it was the only one available and was closely associated with the county. Examples are Figures 110 and 113 which show an OL&I freight train on Logan's main street and the first train to arrive in Malad, Idaho. These trains traveled through Box Elder County to get to their destinations.

This study was also limited to industries and was not intended to present a general history of the county. Nor was it intended to be a complete history of industry in the county, but rather a photographic record of selected industries as its name implies.

The availability of old photographs was another limiting factor in this study. Although many were found, it is felt that there are many more which could be found by additional research.

### Review of Literature

In the statement of the problem, reference was made to two histories: the "History of Box Elder County,"<sup>1</sup> and "Through the Years."<sup>2</sup> The History of Box Elder County which was compiled by the Box Elder County Chapter of the Daughters of Utah Pioneers, was the richest historical source found concerning the county. It contains several

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<sup>1</sup>Daughters of Utah Pioneers, Box Elder County Company. History of Box Elder County, about 1958. Available in Utah State University Library and Brigham City Public Library.

<sup>2</sup>Brigham City Eighth Ward, "Through the Years." 1953. Available in the Brigham City Public Library.



chapters on industries. Chapter three is entitled "Transportation and Communication." Chapter seven, "Early Day Industries," chapter nine "Co-op Days" and chapter ten, "Mills and Factories," all contain rich historical information and prove clues to the possible location of photographs that could be used in this thesis.

"Through the Years" is a paper bound book of 68 pages written by many contributing writers of the Brigham City Fourth L.D.S. Ward. As stated in its preface, this book was written as a history of the L.D.S. Fourth Ward; however, it is not limited to the Ward, but contains many interesting writings and photographs of the entire city. A search was made among the writers for the original manuscript of this book. It was found that each section was apparently returned to the various writers and the photographs were returned to their owners. In the research for this thesis the writer found some of the same photographs, probably from the same sources in most cases. Only six of the 128 photographs used in this work are the same as those used in "Through the Years."

In checking theses that have been written, it was found that several have been written on topics which have some relationship to the present study. One was written by Calvin R. Beck<sup>3</sup> in 1958 entitled, "A Photographic Record of Physical Facilities for Teaching Industrial Arts in Selected Utah Schools." The relationship of this thesis with the present study is that it is a photographic record and presents some early information as well as current information at the time of the

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<sup>3</sup>Calvin R. Beck. 1958. A Photographic Record of Physical Facilities for Teaching Industrial Arts in Selected Utah Schools. Unpublished Master's thesis, Utah State University, Logan, Utah.

writing. Another thesis that is related to the present study is one written by James Lewis Hendrickson<sup>4</sup> in 1960 and is entitled, "A Pictorial Presentation of Furniture Manufactured in Utah, 1847-1957." This thesis presents 65 photographs showing furniture manufactured in Utah from the time of arrival of the Mormon Pioneers to the present time. Still another thesis written by Phillip E. Sorenson<sup>5</sup> in 1957 entitled, "A Corporate and Financial History of the Utah-Idaho Central Railroad," presents an economic and historical study of this railroad which spanned Box Elder County from Hot Springs to Collinston until it was abandoned in 1947.

A very informative article on the old cooperative movement in Brigham City was written by Dr. Leonard J. Arrington,<sup>6</sup> Professor of Economics at Utah State University. This article gives a vivid insight into the cooper industries of the 1870's and contains photographs of the old Tannery, The Boot Factory, the Dairy, and the Woolen Mills.

The writing of Bernice Gibbs Anderson, Jesse Harold Jameson,<sup>7</sup> and Robert M. Utley,<sup>8</sup> as published in the Utah Historical Quarterly and the SUP News, bring to life the meeting of the rails at Promontory and give an account of the early days in Corinne.

---

<sup>4</sup>James L. Hendrickson.. A Pictorial Presentation of Furniture Manufactured in Utah 1847-57. Unpublished MS thesis, Utah State University, 1960.

<sup>5</sup>Sorenson, Phillip E. 1959. A Corporate and Financial History of the Utah-Idaho Central Railroad. Unpublished MS thesis. Utah State University Library, Logan, Utah.

<sup>6</sup>Arrington, Leonard J. 1965. Cooperative Community in the North--Brigham City, Utah. Utah Historical Quarterly 33(3):197-217.

<sup>7</sup>Anderson, Bernice Gibbs, and Jesse Harold Jameson. 1959. The Saga of the Good Ship City of Corinne. SUP News 6(4-5):13.

<sup>8</sup>Utley, Robert M. 1961. The Dash to Promontory. Utah Historical Quarterly, April 1961.

The Brigham City Bugler,<sup>9</sup> a weekly newspaper published in Brigham City during the 1890's, gives details of the coming of electricity and culinary water to this community. The development of new flour milling, monument manufacture, and other industries are also reported in its pages.

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<sup>9</sup>Brigham City Bugler. Weekly newspaper published in Brigham City before 1900. June 14, 1890 (first issue) to June 6, 1896, available in three bound volumes in the Brigham City Public Library.

## PRESENTATION OF FINDINGS

### Minerals

#### Manufacture of Adobes and Bricks

Some of the first industries associated with Brigham City and Box Elder County were those necessary to provide shelter and food. Soon after Brigham City was platted, in the spring of 1855, home construction began outside of the Fort. The first adobe house built outside of the old Fort was the John D. Reese home, which is shown clearly on location in Figure 68. It faced west on Third East Street, at the intersection of Third East and Forest Streets. This indicates that the manufacture of adobes began in 1855.

The second adobe house built in Brigham City was built by Christian Hansen. He and his wife Elizabeth made the adobes from the clay near the spring that is located by the highway just north of the present Brigham City golf course. This home still stands today and is located at Thirteen North on Second East Street. Dr. Huchel bought the home about twenty-five years ago. He remodeled it with stucco exterior and orange tile roof to resemble Spanish architecture and even today it is one of the most delightful homes in the city.

The old adobe pits located near the end of Watery Lane are shown as they appear today in Figure 1. Although grown in with grass, and currently used for pasture, the depressions where the clay was dug are still evident. In 1891 Erastus Hansen advertized, "First class adobes



Figure 1. The old adobe beds west of Brigham City as they appear today. Clay for many of the old adobe structures was dug here, moulded into adobe bricks and baked in the sun.

Figure 2. This old lime kiln, located about 2 miles north of Brigham City, is believed to be the old Co-op kiln which burned lime that was used for mortar and white wash for many of the early structures built in the Brigham City area.



only \$7.00 a thousand."<sup>1</sup> Adobes were used in home construction until after the turn of the century. Burned bricks as well as adobes were made by the spring just west of the road and about one-half mile north of Brigham City. Bricks were also burned in the 1890's in kilns fired by gas from the gas well west of the city.

### Lime

The remains of two old lime kilns can be found near Brigham City. Figure 2 shows the one located by the side of the highway approximately two miles north of the city. It is believed that this kiln was operated by the Co-op in the 1860's and 70's. The other kiln is shown in Figure 3 as it appeared while under construction in about 1890 and in Figure 4 as it appears today. It narrowly escaped destruction the last time the highway was widened and improved. The highway graders cut through the old loading place in front of the kiln, exposing a cross-section of the loading area. Notice in the current photograph the white band of lime varying in width from about one to three feet in front of the kiln. This was probably waste and also spillings as the wagons were loaded there. In the old photograph, James Sheffield, builder of the kiln, is standing on the corner to the left. Even though handicapped, Sheffield was a hard worker and accomplished much in his day. Charles Sheffield, son of James Sheffield, currently resides in Brigham City and as a boy he worked with his father at this kiln. He tells of hauling loads of coal up the canyon with team and wagon and bringing back loads of lime on the return trips. Lime

---

<sup>1</sup>The Brigham City Bugler, July 11, 1891.





Figure 3. The Sheffield lime kiln shown under construction about 1892. Located on the turn, just north of Mantua, this kiln operated until about 1910. James Sheffield, who built and operated this kiln, is standing to the left on the corner of the kiln.

Figure 4. The Sheffield lime kiln as it appears today (1966). A white band of lime can be seen just below the kiln. This was recently uncovered by the highway graders when the road was widened and improved.



rock located near the kiln was used in making the lime. A grate was located in the arch of the kiln and a large circular chamber extended upward to an opening in the top where the kiln was loaded with alternate layers of coal and lime rock. After being charge properly, the kiln was then fired. Mr. Sheffield stated that when the kiln was burning well it burned with an intense blue flame. While in production it was kept burning continually, the coal and lime rock being loaded into the top of the kiln and the lime being drawn from the bottom. Each day about 2 1/2 tons of coal were loaded into the kiln with the lime rock. In return the kiln would produce 50 to 75 bushels of lime, which after cooling was loaded and hauled to Brigham City. Here it was used primarily for mortar for building purposes.

Lime kilns were also built in other locations in Box Elder County. In 1892 it was reported from Collinston: "D. P. Tarpey is opening up big stone quarries at the fossil mound near the school house and also erecting several lime kilns there."<sup>2</sup> These were apparently never developed to the extent reported.

Joseph Orme made lime at Lakeside and Elias Jensen made lime and burned bricks in the fields west of Brigham using his gas well to fire his kilns.

#### Gas

In about 1887 gas was discovered in the fields west of Brigham City. Elias Jensen had planted an orchard on his property and was drilling for water when he struck gas instead. George Craghead was drilling for water about 2 miles north of the Jensen well and struck

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<sup>2</sup>The Brigham Bugler, November 12, 1892.



gas at this location also. In the first part of June 1890, a large flow of gas was struck about half way between the Jensen and Craghead flows. At a depth of 170 feet gas was encountered which resulted in a spectacular gusher. The diameter of the well outlet was only 1 1/2 inches; however, this spouted sand and water about 75 feet in the air and the roar of the escaping gas could be heard a quarter of a mile away. It was reported that when the gas was ignited in the night, people could see their shadows while walking on the streets of Brigham City a mile and a half away.

Needless to say, this gas discovery caused much excitement in Brigham City and surrounding area. The supply seemed to be inexhaustible and plans were made to pipe it into the city; however, after only several months, the Bugler reported that the new gas well was "clogged up." It seems that all of the gas wells in this area have been victims of the same fate. The gas is apparently contained in pockets, and after a spectacular beginning, they diminish and then flow water and mud.

Long after the gas discoveries of the Nineties were forgotten, new excitement flared when gas was discovered at the Bear River Bird Refuge in the summer of 1931.

The opening up of a natural gas pocket, estimated from one million cubic feet upward, on the government project at Bear River Bay, west of this city, has created considerable interest locally and throughout the state. The pocket was opened up last week by a crew of government workers who were drilling for water, under the direction of Engineer Vanez T. Wilson. At about 300 feet, the drillers struck a hard pan and after drilling through this hard substance, struck gas at a depth of about 310 feet. The escaping gas threw mud and water to a height of more than 100 feet, and has continued to flow uncontrolled since Wednesday. The pressure has been estimated variously at

from 300 to 400 pounds per square inch. A six inch casing, which had been placed by the workers, dropped down when the pocket was reached and became useless. Arch Hull of this city who is working on the project, said Saturday the escaping gas had opened a hole in the ground about fifteen feet in diameter and the surging mud and gas looks like a crater.<sup>3</sup>

History had repeated itself. The exploration was for water and gas was discovered instead, and the resultant flow was a spectacular gusher. Another well was sunk and place under control as reported in the Box Elder News as follows:

A new gas well has been developed on the government project at the Bear River Bay wild bird refuge west of this city, according to Vanez T. Wilson of this city, engineer in charge. An 8 inch casing was sunk to a depth of nearly 400 feet, by Wesley Stoddard of Ogden, and on Saturday a flow of marsh gas was encountered, which was put under control. On Sunday the gas was let off through a two inch pipe and when set on fire the flames shot into the air upwards of about 75 feet. The pressure of the gas is said to be about 100 pounds to the square inch.

According to Mr. Wilson, the gas will be used in heating and lighting the government buildings at the Bear River Bay Refuge and it is believed that sufficient gas has been tapped to supply the needs of a city of from 5,000 to 6,000 inhabitants. The new well is not far from the former well that was drilled on the marshes during the summer and which went out of control, forming sort of a crater, which has been bubbling and seething since that time. When the new well was opened, the pressure on the old well ceased considerably and plans are now under way to seal it up.

The government is drilling at the marshes for the purpose of obtaining a supply of culinary water, and the new well, Mr. Wilson says, will be drilled deeper or until a supply of water is obtained.<sup>4</sup>

This gas well was used to heat, cook, and generate electricity at the Bird Refuge until 1949 when the flow diminished below a usable level. At this time the well became erratic and began to flow mud and water. Suitable drinking water was never found at this location and still

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<sup>3</sup>The Box Elder News, August 25, 1931.

<sup>4</sup>The Box Elder News, December 1, 1931.

has to be trucked in today. Figures 5 and 6 show the gas strike at the Bear River Bird Refuge in August of 1931. The gusher shown is probably typical of the gas strikes in the fields west of Brigham around 1890.

At Duckville, about 1 mile east of the Bear River Bird Refuge headquarters, a gas well was also drilled in the early 1930's. It is still used today for cooking and heating during the duck hunting season, and is reported to be holding at about 150 pounds pressure. This well has not been used to the extent that the well at the Refuge headquarters was used.

#### Oil Exploration

There has been some recent oil exploration in Box Elder County by the Gulf Oil Corporation. Two dry holes were drilled near the asphalt seeps, on the shores of Great Salt Lake, approximately 10 miles south of Rozel. The "State Rozel #1" is shown in Figure 7 as it appears today. The 4 inch pipe extends about 5 feet above the ground level and the top is closed and welded. Another try in this locality was the "Leonora Bullen #1" which was drilled 1 mile to the east. Beginning in April 1963, Gulf drilled another dry hole, the "Adams #1," which was located about 1 mile northwest of the Thiokol administration building at Lampo. Grant Steele was the Gulf geologist on location. The drilling was done by the Brinkerhoff Drilling Company of Denver, Colorado. Their rig is shown in Figure 8, as it appeared on April 8, 1963, about the time drilling was commencing. The derrick was 150 feet high. Because of the lack of water in the area the conventional mud drilling method was not used. A newer method, using compressed



Figure 5. The old drill rig which was drilling for water at the Bear River Bird Refuge in 1931 and struck gas instead. This gas was used to cook, heat, and generate electricity until 1949 when the flow diminished below a usable level. This gas was analyzed as marsh gas and was discovered at a depth of 310 feet.

Figure 6. The gusher resulting from one of the gas pockets opened up at the Bear River Bird Refuge in 1931. This gusher is probably typical of the first gas strike west of Brigham City in about 1887, when Elias Jensen was drilling for irrigation water and struck gas instead.







Figure 7. This is the site of a recent oil exploration by the Gulf Oil Corporation. Located near the asphalt seeps, on the shore of Great Salt Lake, 10 miles south of Rozel, this exploration was named the "State Rozel #1." Planking was used to support the drill rig.

Figure 8. Another deep oil exploration by Gulf was the "Adams #1" located 1 mile west of Thiokol. Shown here as drilling began in April 1963. Drilling reached 8,000 ft. without encountering oil.



air to blow out the hole, was employed. A battery of about eight large diesel driven compressors, furnished by Technical Air Service of Texas, provided the compressed air. The roar of these compressors in operation was almost deafening. The drilling was a continuous operation and employed 5 men per shift. After several weeks of operation they reported drilling had reached 1400 feet. Some water had been encountered but was reported to be too salty for drinking or irrigation. Total exploration was set for 8,000 feet and it is believed they drilled to this depth without encountering oil.

The Rozel asphalt seeps have seen many attempts over the years to tap their possible wealth. The first recorded attempt was by the LaSalle Mineral Company, who in 1907 drilled to a total depth of 1,400 feet. Located on the shores of Great Salt Lake, the thick, black petroleum substance oozes to the surface along the shore and in some places beneath the surface of the lake. The material resembles asphalt but is reported not to be asphalt and was named "Utenoil" by Gulf who explored this area in 1962. The Utenoil is believed to be in a honeycomb formation, in a semisolid state, at depths of 150 to 250 feet, rather than in a large pool. Some geologists have supported a theory that the oil is not leaking from ancient beds but is 4,000 or less years old and is generated in the sediments of the saline waters of the Great Salt Lake.

The remains of an early attempt to tap the oil seeps is shown in Figure 9. Since this operation was built on pilings, it was evidently undertaken when the level of the lake was higher.<sup>5</sup> The old boiler

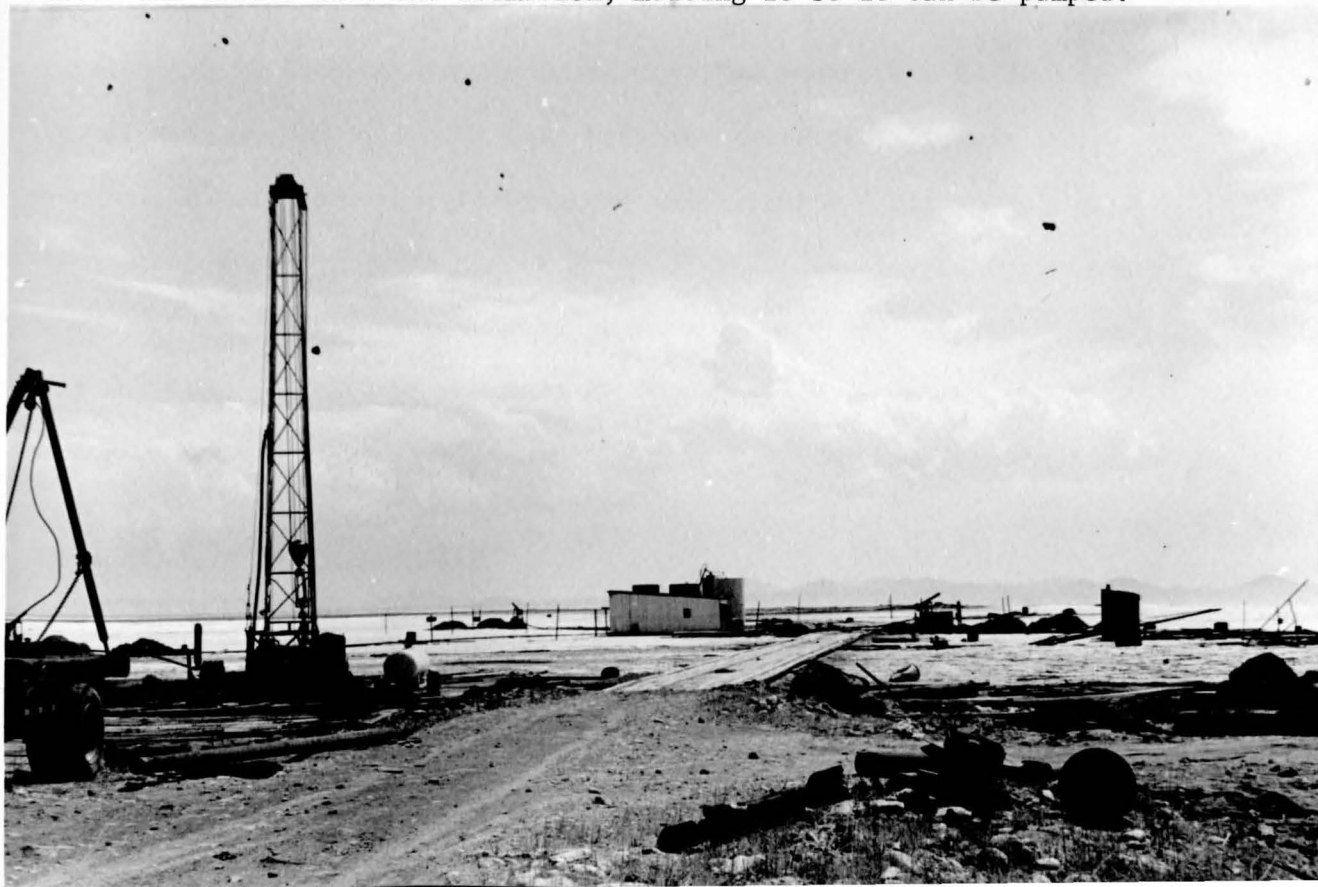
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<sup>5</sup>Great Salt Lake has been gauged since 1850. The highest recorded level was in 1873 and the lowest in 1940. The difference between the two extreme levels was 18 feet.



Figure 9. The remains of an early attempt to tap the asphalt near Rozel. The thick black substance seeps from the ground here and beneath the surface of the lake nearby. An old boiler can be seen lying beneath the shed indicating that steam was used to melt the formation.

Figure 10. Charles E. King and Associates, a Texas oil firm, is currently (1966) developing the asphalt seeps and has met with some success. Oil is heated and forced into the formation, melting it so it can be pumped.



rusting beneath the shed indicates that steam was used in drilling and/or melting the formation so it could be brought to the surface.

Charles E. King and Associates, a Texas oil firm, is currently (1966) developing this site. Their operation is shown in Figure 10. They have five or six wells currently producing and another one being drilled on the location of the derrick. The center of Figure 10 shows a building which houses a diesel electric plant and an oil heater. The electric plant is used to power the electric motor driven well pumps and the heater heats a special oil to 400 degrees which is then circulated through a coil in the bottom of the well to melt the Uten-oil so it can be pumped to the surface. When heated to 200 degrees or more, a conventional oil pump can be used to bring this material to the surface. To the right and left of the building can be seen two of the wells. As the Utenoil is pumped to the surface it is stored in the tanks on the far side of the building. Since this material has good insulation qualities, little additional heating is required to keep it liquified until it is transferred to tank trucks and shipped to a Salt Lake Refinery for further processing. Utneoil is used for waterproofing and insulating and brings more on the market than crude oil. Jack Wright is manager of this operation which so far has been successful. Future success will depend on how far out from the core of the well the material can be successfully melted. Other means might also be used to melt the formation.

#### Salt and Other Lake Minerals

The major part of the Great Salt Lake is within Box Elder County. Here lies a great store of mineral wealth. Salt, magnesium, potash,



and other minerals are contained in the briney waters of the lake. The early pioneers had to import salt from the East, which made it rather expensive. With the salty lake so near at hand, efforts were soon undertaken to extract salt from the lake. An early effort was begun in 1864 by George Parsons and William Neeley who set up some evaporators near the mouth of Bear River, and using the willows that grew along the river for fuel, evaporated the lake water to manufacture table salt.<sup>7</sup> The lake water was hauled by wagon to the evaporators, making this a rather slow and difficult operation.

In 1872 William Craghead made evaporating ponds on the lake shore southwest of Brigham. (The lake reached its highest recorded level in 1873.) He was thus able to evaporate large amounts of salt water and produce great quantities of salt economically much as it is done today. He shipped salt that was used in the mining and smelting industry for fluxing. A few years later the lake receded, and due to the flatness of the lake bed it left his operation far from the salt waters of the lake and he was forced to abandon the salt business. There is evidence that salt was produced at this location until 1890.<sup>8</sup> This salt property was sold in 1892 and there are no further indications that salt was ever produced there again. The remains of the old evaporating ponds are still in evidence.

Others who have produced salt in Box Elder County include Orson and John Merrill who manufactured salt from the warm springs at the headwaters of Salt Creek. Lars Christensen and Christian Larson also

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<sup>6</sup>The Box Elder News, December 12, 1965, p. 10.

<sup>7</sup>Daughters of Utah Pioneers, Box Elder Chapter, History of Box Elder County, p. 88.

<sup>8</sup>The Brigham Bugler, November 12, 1890, and March 12, 1892.

produced salt. R. V. Call produced salt at Promontory Point for several years beginning in 1935. Frank E. Jensen of Brigham City worked there for Mr. Call and said that they harvested the salt from the evaporating ponds by shovel and wheelbarrow.

For a number of years, beginning about 1940, a salt firm known as the Quaker Salt Company produced salt at Monument Point on the north shore of the lake. This was a stock company and the major stock holders were as follows: J. C. Wood, L. W. Dunn, David Priest, and J. H. Olson.

The only firm manufacturing salt in Box Elder County at the present time is the Lake Crystal Salt Company. It is located at Saline, a mile or two west of Promontory Point. This plant is owned by Harold Pence and is shown as it appears today (1966) in Figure 12. It was founded by M. G. Pence, father of the current owner. It employs seven people continuously and produces all grades of salt; commercial, water softener, etc.

Currently large commercial interests are looking at the lake with multiple mineral development in mind. The Lithium Corporation of America and Salzdettfurth of Hanover, West Germany, have conducted research which indicates that it would be technically and economically possible to produce potash, sodium sulfate, magnesium salts, and compounds, and lithium from the brines of the lake.<sup>9</sup>

There has been a great controversy during the past year (1965-66) over who owns or should own the lands exposed as the lake has receded.

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<sup>9</sup>Deseret News, February 15, 1966, p. C-4.



Figure 11. A view of Great Salt Lake looking west over the center of the lake from Promontory Point. This lake contains vast mineral resources in the form of dissolved salts. Several large chemical firms are currently planning to extract potash, magnesium, sodium sulphate, and lithium from the brines of the lake.

Figure 12. The Lake Crystal Salt Co. owned by Harold Pence and located at Promontory Point is the only salt plant now operating in the county.



The contest has been primarily between the Federal and State governments; however, private land owners have also been involved. This legal entanglement has somewhat held up industrial development, the industrialists now known whom to deal with for land leases and other land problems. It appears that final settlement of this issue will be in favor of the State.

### Cement

Early in the 1890's Henry C. Baker discovered the marl deposits located about 5 miles northwest of Brigham City. He succeeded in selling the potential of this deposit to C. A. Day of Chicago who had considerable financial backing. Mr. Day organized the Ogden Portland Cement Company, built a plant and began manufacturing cement in 1909. The location of this operation is shown in Figure 13 as it appears today. The large excavations where the marl and clay were removed appear as ponds on the photograph. The cement plant can be seen in its early days and in its maturity before the fire in Figures 14 and 15. The plant operated seasonally, closing down for several months in the winter. When operating at full capacity in its latter years, this plant could produce about 1,200 barrels of cement per day, a barrel being the equivalent of four bags of 94 pounds each.

Henry C. Baker died at his home in Ogden on Thursday, June 19, 1930, and did not live to see the cement plant burn. Little more than a year later on August 30, 1931, a Sunday morning at 4:20 a.m., fire of unknown origin started in the frame structures of the plant and burned the west frame buildings up to the center stacks. The Brigham City Fire Department was summoned but could not respond because of a





Figure 13. The marl deposits located several miles northwest of Brigham City as they appear from the mountain to the east. The large ponds are excavations where the marl and clay were removed and hauled by rail to the plant nearby to be made into cement.

Figure 14. The Cement Plant, built in 1909, is shown here in operation about 1915. H.C. Baker discovered the marl deposits and located the necessary capital to build the plant.



CEMENT PLANT, BRIGHAM CITY, UTAH

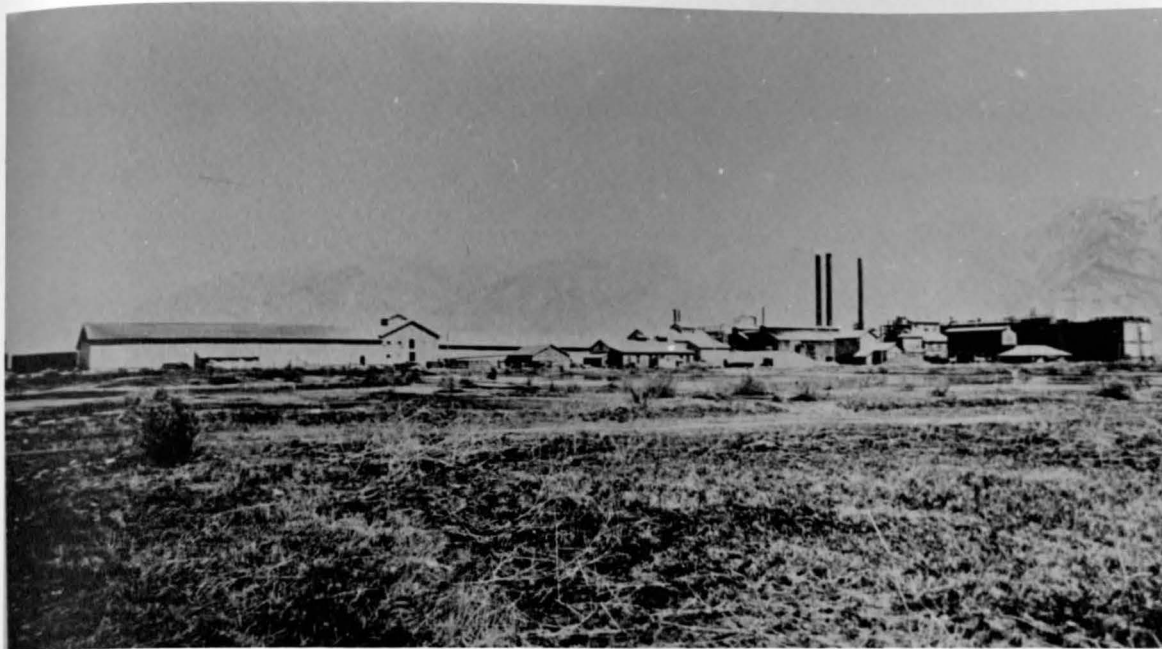


Figure 15. The Cement Plant as it appeared in 1925-30 before the fire. The long frame building (from the center of the photograph to the left edge) burned on August 30, 1931, and the plant never operated again. This plant produced 4800 bags (94 pounds each) of cement per day.

Figure 16. The cement plant ruins as they appear today (1966). Little is left except the crumbling cement structures that appear to the right in the photograph above. The new interstate highway passes immediately in front of the old ruins. The structure on the far left is part of a highway overpass.



local ordinance forbidding the fire department to leave the city. Ogden was called for help and responded with a truck and a number of Ogden firemen who together with the Brigham City firemen, finally extinguished the blaze.<sup>10</sup> The fire had taken its toll. Destroyed were the buildings containing the stock house, finishing grinding department, the tile plant, and other property. The cement plant was never operated again. Some of the cement structures as they stand today in ruins are shown in Figure 16.

#### Monument Manufacture

The Box Elder Marble and Granite Works was founded in 1877 and was located one and one-half blocks south of the Tabernacle on Main Street. John H. Bott was the proprietor and manufactured monuments, tablets, headstones and did custom work of all kinds. In 1892, Bott purchased the grist mill on the corner of Second North and Fourth East Streets and using the water power there was able to increase his output somewhat. Figure 17 is an early view of the rear of the mill showing the stock storage, loading, and moving facilities. The display yard was located at about 78 North Main Street and is shown as it appeared in 1919 in Figure 18. Still in operation today, the concern is called the John H. Bott and Sons Company and is operated by Max Bott, a grandson of the founder. One of the oldest operating firms in the county, as well as the West, this historic business is shown in Figure 20 as it appears today.

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<sup>10</sup>The Box Elder News, September 1, 1931.



Figure 17. The rear yard of the John H. Bott & Sons Monument Co. as it appeared in the early days. Stone work for building purposes was also processed in this mill.

Figure 18. The John H. Bott display yard located on North Main in Brigham City as it appeared in 1919. Victor J. Bott, who was employed there at that time, is standing in the foreground.







Figure 19. John H. Bott & Sons setting the large stone columns in front of the new court house in Brigham City. The new court house was built on the front of the old building, the tower of which can be seen to the rear. This tower was removed when the new building was completed.



Figure 20. This historic building, built as a grist mill in 1855, was converted to a monument mill in 1892 and has been operated as such since that time by the John H. Bott family.

Figure 21. This rock quarry located at Park Valley is operated by Glen E. Fuller & Associates and produces a beautiful green building stone that is shipped throughout the country. The mill in the lower left portion of the photo produces green aggregate all sizes.



### Stone Quarries

Rock was used to a considerable extent for building purposes in the early days. Many of the older buildings in Brigham City and throughout the county are built of rock or contain rock foundations. The famous Tabernacle, the Co-op Building (now the First Security Bank), Merrell's Planing Mill, the Baron Woolen Mills, and the old Tannery all have rock walls that were laid in the early days in Brigham City. Some fine rock home, built in the early days and still in use today can be found along the highway through Harper and Willard. A rock wall was planned to surround Brigham City along Fourth East, Fourth West, Second North, and Second South Streets. These streets were first named East Wall, West Wall, North Wall, and South Wall Streets, respectively. The wall was only partially built. Its purpose (to protect from Indians) became unnecessary and the effort was abandoned. A family could earn a lot within its boundaries by laying up a specified length of this wall. This provided incentive to help get the job done.

Rock for building purposes was plentiful along the mountains east and north of Brigham City. Various types of stone were discovered in the surrounding mountains including marble, slate, onyx, granite, and sandstone.

Western Box Elder County has been a great producer of building and decorative stone in recent years. A number of rock quarries are located in the Park Valley, Rosette, and Lynn areas. One of the larger operations is the green rock quarry at Park Valley. It is operated by Glen E. Fuller and is shown in Figure 21. Blair Sorensen

and Steve Anderson have shipped rock recently from their quarry located above the Rosebud Ranch, southwest of Park Valley.

The largest rock quarry in the county is located at Promontory Point and was operated to produce fill and rip-rap for the rock fill railroad causeway across the lake. The Southern Pacific also has a quarry at Lakeside on the west side of the lake. A large quarry was operated at Lucin also when the Lucin Cutoff was built in 1903.

Morrison-Knudsen was the contractor for the \$49,000,000 railroad causeway that was built across the lake to replace the aging trestle. Headlines in the Box Elder News of December 28, 1955 announced, "Greatest Construction Project in Box Elder Starts This Year, Promontory." Preliminary work had been done the several years preceding this time. Research and testing was done to determine if the lake bottom would support the weight of a solid fill. Actual construction of the fill began in October 1956, and was completed with rails laid by August of 1959. A small community, called "Little Valley," and consisting mostly of trailer houses, was built near the site. A harbor to load rock and gravel barges was built near by. The Little Valley area is shown in an aerial photograph, Figure 22. A barge loading site is shown in Figure 23, and other construction scenes are shown in Figures 24 and 25.

#### Sand, Gravel and Rock Products

On both sides of the mouth of Box Elder Canyon lie great deposits of high test gravel. Washed and laid down by the receding waters of ancient Lake Bonneville, the gravel is extremely clean and free of





Figure 22. An aerial view of Little Valley and its "sea port" which was built to provide rock and gravel fill for the rilaroad causeway across the lake. Morrison-Knudsen was the contractor for this \$49,000,000 project. Construction was from 1956 to 1959.

Figure 23. One of the barge loading sites at Little Valley harbor.





Figure 24. The tug "Nevada" and the barge "Roseville" with a load of fill, leaving the Little Valley channel, enroute to the causeway under construction.

Figure 25. The tip of the causeway as it proceeded west under construction from the Little Valley side near Promontory Point.





organic matter. Other smaller deposits similarly formed are located throughout the country. As shown in Figure 68, the deposit at the head of Forest Street in Brigham City, had hardly been touched up until the turn of the century. Since that time many thousands of cubic yards of gravel have been removed and processed from this location and also south of the canyon. Various concerns have worked these deposits since 1900. The greatest activity has been since World War II as the demand for sand, gravel, and rock products have increased. The current company working the deposit south of the canyon is Fife Rock Products Company, Inc. Their operation is shown in part of Figure 26. The company currently working the deposit at the head of Forest Street is the Parson Red-E-Mix and Paving Company, Inc. Their asphalt plant is shown in Figure 27, with part of their gravel pit in the background.

### Mining

The mountains of Box Elder County contain countless prospects. Some of these have been developed into producing mines. In 1892 Henry C. Baker leased the mining property 4 miles north of Brigham City which was owned by the Garfield Mining Company. A force of miners were employed developing the old Garfield tunnel and also working on new prospects. Later Baker organized the Consolidated Mining and Smelting Company. By April 28, 1894, one tunnel was reported to be in 600 feet and a large amount of silver-lead ore was piled up on the dump.<sup>11</sup> By June of 1895 the tunnel was pushed to 1300 feet. A tramway was built to carry the ore to the base of the

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<sup>11</sup>Brigham City Bugler, April 28, 1894.



Figure 26. The Fife Rock Products gravel pit. The asphalt plant is just above the machines in the foreground. The screening and sizing plant is in the right background.

Figure 27. The Parson Red-E-Mix and Paving Co. asphalt plant with part of their pit shown in the background.



mountain. Some of the buckets of this old tramway are still found along the trail to the mine as shown in Figure 32. A two-story "hotel" was built which housed the living and sleeping quarters for the miners. The ruins of this old building can be seen in Figure 33. The building at the main portal of the mine is shown in Figure 34.

The Vipont Mines located near the northwest corner of Box Elder County have a long and interesting history. Beginning in the early 1870's, two brothers named Vipont freighted high grade ore to Corinne for processing. They operated their mine for a number of years before selling their claims. In the 1890's Vipont was taken over by eastern capital and operated until about 1904 at which time it closed because of a decline in the price of silver. During World War I the price of silver came up again and the mine reopened in 1917 and operated until about 1923. New ore bodies were opened up at this time and a mill was built on Birch Creek that would handle up to 300 tons per day. The population of this mining camp increased to 300 people who supported a school with 40 students and also a doctor and an 8-bed hospital. Miners received wages of \$5 per day with \$1 paid for board and room. Figure 35 shows a scene at Vipont in 1919. Frank Wardlaw was the foreman of the mine at this time and signed all of the checks. The record book of John P. Lind of Lynn, Utah, indicates that he sold fresh vegetables, beef, and pork which he produced on his farm to Mr. G. Lavagnino of the Vipont mine in 1890.

Production for the Vipont in the years 1899 to 1904 and 1917 (idle 1904 to 1917) was reported to be 70.88 fine ounces of gold, and 31,099 fine ounces of silver.<sup>12</sup> The mine closed in 1923 due to a

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<sup>12</sup>B.S. Butler, The Ore Deposits of Utah (Wash. D.C.: Gov't. Printing Office, 1920), p. 495.



Figure 28. An asphalt plant in operation near the mouth of Box Elder Canyon. Notice the bulldozer and conveyor supplying aggregate to the plant, the tanker supplying the asphalt, and the dump truck receiving the hot mix to be delivered to the lay-down machine shown below.

Figure 29. This lay-down machine can pave a strip 10 feet wide and 2" thick at the rate of about 3 miles per day. Cox Brothers was the contractor on this section of the freeway west of Brigham City.







Figure 30. The first asphalt paving in Brigham City. Much hand labor was required and the asphalt spreader was horse-drawn. The modern mechanized system shown in Figures 28 and 29 provides an interesting comparison.

Figure 31. Rock crusher in operation near Hot Springs in 1911. Crushed stone was used to produce the macadamized road surface. As shown in this photograph, steam tractors were used both for traction and power.

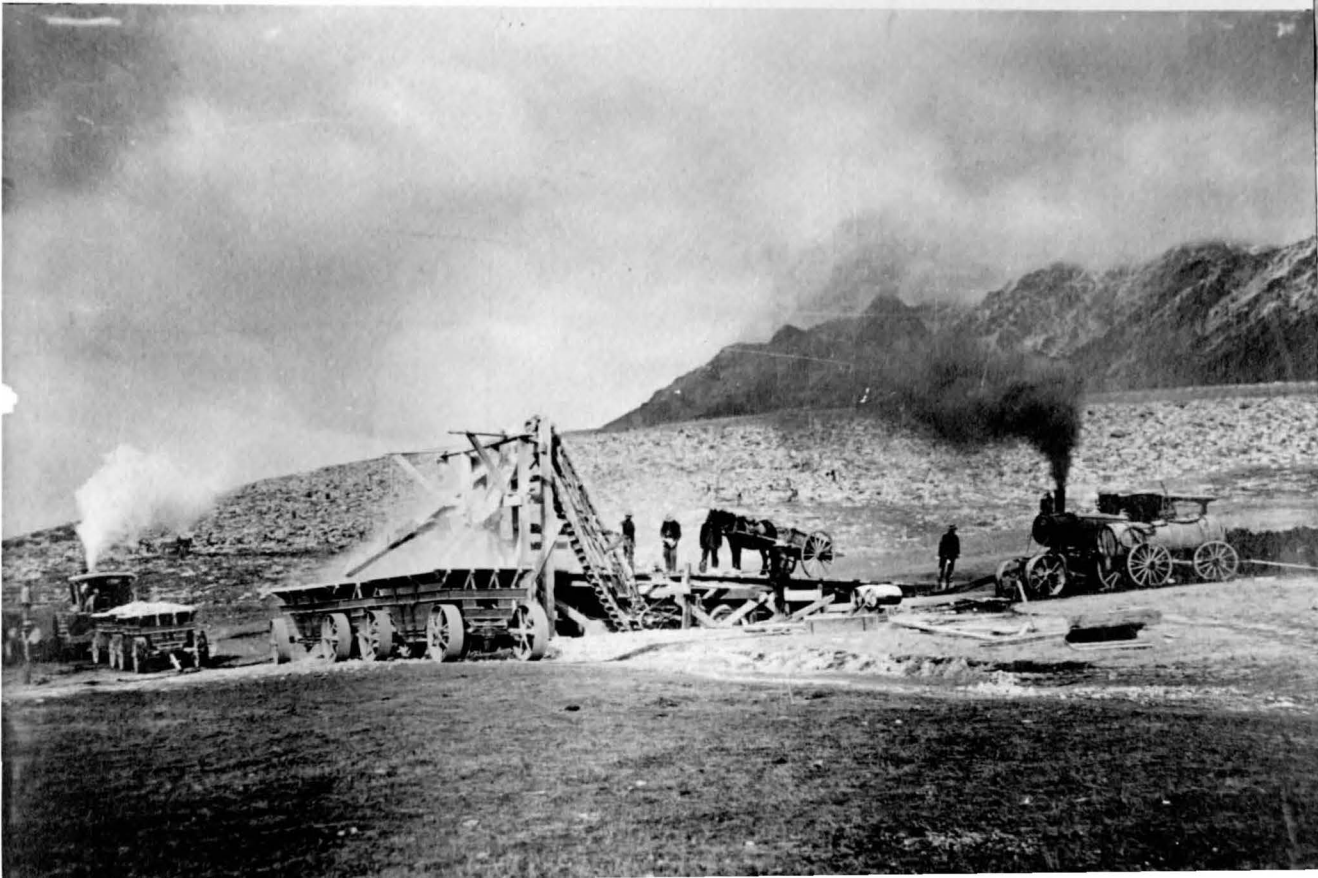




Figure 32. Old tramway buckets lie rusting by the trail to Baker's mine. Though idle for 70 years, they still appear almost operational. Mark Jensen pauses on the trail to view some of the remains of a once operating tramway.





Figure 33. The old two story "hotel" at Baker's Mine. Here lived the miners who pushed the main tunnel beyond 1300 feet in the 1890's. Some of the dump from the main tunnel can be seen in the right foreground.

Figure 34. Within this decaying building can be found an old rusting boiler and steam engine, probably used to supply compressed air or fresh air to the mine. Alan, Kevin, and Mark Jensen pause by the main portal to Baker's mine. The mine entrance, almost overgrown with brush, is through the opening just back of the young men.





Figure 35. The Vipont mines produced a considerable amount of silver during 50 years of intermittent operation. This is a view of some of the buildings in 1919 during the most recent period of operation.

Figure 36. Some of the Vipont mines as they appear today (1966). Vipont is located near the tops of the mountains in the northwest corner of Box Elder County. Recently there has been some renewed interest at Vipont as shown by the new buildings and equipment in the center workings.



decline in the price of silver and it was reported also that production costs were high because extensive work was required to find the ore bodies. A caretaker lived at the mill for 20 years. All the buildings were finally sold and the machinery dismantled and sent to Salt Lake City. Figure 36 shows some of the Vipont workings as they appear today (1966). Recently there has been some renewed interest in the Vipont Mines.

The old Century Gold Mine was a great producer of gold in its heyday. It is located about 5 miles northwest of Rosette. Golden was the principal mining camp of the Park Valley Mining District on the south slope of the Raft River Range. In 1896 a company was organized to work the Century property. A 10-ton Crawford Amalgamation Mill was set up first and was later replaced by a new mill which had 16 one thousand pound stamps and five Wilfley concentrators. The mine exhausted the better grades of ore about 1905 and required more development which was done at various times up to 1913. A new body of ore was developed in 1930<sup>13</sup> and the mine operated again until 1934. The Century has not operated again since that time. The old Century workings as they appear today are shown in Figure 37.

Tungsten is currently being produced from a mine near Rocky Pass in western Box Elder County. The Western Tungsten Mining Company was organized early in 1966 by Blair Sorensen and Steve Anderson of Brigham City. A mill has been built on Owl Spring to concentrate the ore. This operation currently employs 7 people. The portal of one of the tungsten mines is shown in Figure 38. The mill, which was built in the

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<sup>13</sup>The Box Elder Journal, October 21, 1930.





Figure 37. Its buildings tumbling down, and its dumps growing over with brush, the once proud Century gold mine stands silent today. Gold bars were carried secretly from this mine, located near Rosette, to the railroad station at Kelton. Operation was from 1896 to 1934.

Figure 38. The portal of the tungsten mine currently (1966) being operated by the Western Tungsten Mining Company located near Rocky Pass, approximately 15 miles northeast of Lucin. Western was organized by Blair Sorensen and Steve Anderson of Brigham City.





Figure 39. This mill was set up in the spring of 1966 by Blair Sorensen of the Western Tungsten Mining Company. It is located on Owl Spring, about 5 miles north of Lucin and is currently producing tungsten concentrate.

Figure 40. Tungsten concentrate is shown here coming off the table. Water flowing over this vibrating table separates the lighter sands from the heavier concentrates. The "needle," shown on the right center, is approximately 1" wide and 12" long and serves as the dividing line between the concentrate and the sand. A "black light" held over this area makes the tungsten concentrate fluoresce a vivid light blue color as it comes off the table on the left side of the "needle."



spring of 1966, is shown in Figure 39 and tungsten concentrate coming off one of the tables in this mill is shown in Figure 40. Tungsten is truly a space age metal with a bright future which is promising to this new company. The tungsten claims in the Rocky Pass area also appear to have great potential which all points toward success for this budding industry.

### Electric Light and Power

#### Early Lighting

Tallow and oil lamps were the means of illumination in early pioneer homes. As candle molds became available, candles were made and used. The Brigham Bugler in its second issue, published June 21, 1890, reported: "The [oil] street lamps should be extended and multiplied on Main and Forest Streets." This indicated the desire for more adequate street illumination. A financial report of Brigham City for the year ending March 2, 1891 gave the following expenses for street lighting:<sup>14</sup>

Oil for Lighting Street Lamps	\$135.10
Night Watchman, and Lighting Street Lamps	490.00
Repairing and Erecting Street Lamps	17.65

The street lamps of that day were coal oil lamps supported by wooden poles. The night watchman lighted the lamps each evening and extinguished them each morning. He also kept the globes clean and the lamps in good repair.

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<sup>14</sup>The Brigham Bugler, March 14, 1891.



### Electricity Comes to Brigham City

Early in 1891 interest was developing in electric lighting. It had only been 12 years since Edison had made the first successful incandescent lamp. Some electric street lighting had been installed in the larger cities to the south and the townspeople had seen its brilliance.

A gentlemen was in town yesterday figuring on placing a 650 lamp electric light plant in the city. The dynamo would likely be placed in the flour mill and about three miles of wire run through the city. The total cost of the enterprise would reach \$5000. The business men all seem in favor of the matter. A stock company will probably be organized. Give us light.<sup>15</sup>

Later this same year a group of local businessmen organized to bring electricity to the city.

Brigham City will be lighted by electricity. The necessary capital has been subscribed by our local business men and a \$5,000 to \$10,000 plant will be placed in the city shortly. Among the investors are President L. Snow, O. G. Snow, L. T. Peirce, A. E. Snow, E. A. Box, R. K. Wilson, and others. The enterprise is a sure go. The only thing that now holds it back is a franchise, which will, of course, be granted next time the city council convenes. The City of Homes will look serenely beautiful when lighted by electricity.<sup>15</sup>

The anticipation of the first electric lighting was evident in the pages of the Brigham Bugler. November and December 1891 were eventful months in bringing electricity to Brigham City. A race was on to have the electric street lamps lighted before 1892. First indications were that the "dynamo" would be placed in the flour mill and be turned by its water wheel; however, the water wheel in the Woolen Factory (now

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<sup>15</sup>The Brigham City Bugler, July 11, 1891. The Bugler was first published June 14, 1890 by Mansfield Snow who indicated in his writing that he was progressive and favored city improvements.

<sup>16</sup>Ibid., October 10, 1891.

Baron Woolen Mills) was leased and this was the location where electricity was first generated in Brigham City. Figure 70 shows the Baron Woolen Mills as it appears today. The old rock structure forming part of the rear of the present building is the original woolen factory. Poles to carry the electric light wiring and fixtures arrived in November and were set in their positions and wiring installed the first part of December 1891. There is evidence that the line ran from the woolen factor to the corner of Forest and Fifth East Streets and thence down the north side of Forest Street to Main Street. The original poles can be seen in Figure 68.

This first electric lighting venture was called "The Brigham City Electric Light Company" and the officers were as follows: F. C. Priestly, President; H. Moore, Vice-President; O. G. Snow, Treasurer; S. A. Luke, Secretary. Mr. Priestly went to Pueblo, Colorado, and purchased a 700 lamp dynamo and fixtures which were to serve the city's needs for years to come. The dynamo arrived the latter part of December and installation was begun to couple it to the woolen mills water wheel.

Although Brigham City did not see electric lights in 1891, it did early in 1892.

#### Brigham Illuminated

The completion and successful operation of the electric light system this week marked a memorable era in the history of Brigham City. The lack of sufficient water power and the subsequent slipping of a belt delayed the turning on of the full force of current until last evening. At about six o'clock the electric current was sent spinning through the several miles of wire which now hand over our principal streets, lighting the 30 street lamps and scores in the business houses, illuminating the business part of the city most beautifully. This gave Pleasant, Young, Forest, and especially Main Street quite a metropolitan air. The electric

lights are a signal success and the citizens of Brigham City and the Brigham City Electric Light Co. in particular are to be congratulated.<sup>17</sup>

This news item indicates that the first successful electric illumination of Brigham City occurred on Friday evening January 15, 1892, about 6:00 p.m. The coupling of this dynamo to the water wheel in the woolen factory was apparently not very successful. After only four months of operation it was decided to purchase a 40 horsepower steam engine and move the dynamo to a location near the depot and operate it by steam power. The boiler was to be fired by coal and this was the reason to locate near the railway station so that coal would be readily available by rail. The steam engine was procured, a building erected, and the dynamo moved to this location in June or July of 1892. The electric line was then extended up the center of Forest Street and it is believed that lamps were installed on the poles, illuminating Forest Street from the depot to Main Street.<sup>18</sup>

Steam power proved to be too expensive for continued profitable operation and after approximately one year the company built a rock power house near the mouth of Box Elder Canyon and moved their dynamo to that location in the latter part of May 1893. This plant, Brigham City's first hydro-electric plant built as such, is shown in Figure 41.

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<sup>17</sup>The Brigham City Bugler, Saturday, January 16, 1892.

<sup>18</sup>All efforts to locate photographs of the original installation in the woolen factory and the steam plant near the depot have thus far been unsuccessful. Research indicates that the original dynamo was stored for some time in a shed located behind the Charles W. Knudson residence (92 South First East) in Brigham City. The residence still stands; however, the shed and its contents have been gone for some time.



Figure 41. The old rock power house, the first hydro-electric plant to serve Brigham City was built by private interests in 1893, only 12 years after Edison made the first successful incandescent lamp.

Figure 42. The location of the old rock power house as it appears today. The only thing left intact is the brick arch which spanned the tail race shown in the photograph above. The author carefully covered the top of the arch, which was exposed, in order to prevent desecration.



The site as it appears today (1966), almost obscure, is shown in Figure 42.

The first dynamo was reported to have a capacity of 700 lamps (16 candle power each). It was a direct current machine (thus the name "dynamo") and designed to maintain a 5.5 ampere circuit. This would indicate that the lamp load was a series circuit, and the voltage at the dynamo was probably varied to maintain 5.5 amperes according to the number of lamps in the circuit at any particular time.

#### Brigham City Municipal Power and Light

By the turn of the century, a little rock power house became inadequate to serve the demands of the community. The City Council met on February 12, 1901, and requested that the plant be enlarged to supply the needs. The Light Company found it difficult to enlarge, claiming that it was not a paying proposition anyway. On April 8, 1902, a committee was appointed to explore the possibility of building a municipal plant. This plant was built and is shown in Figure 43 as it appeared in 1904 while still new. It was powered by a Pelton Wheel and had a General Electric, alternating current generator rated at 350 kilowatts capacity. It delivered power into a 3 phase, 4 wire, 2300 volt distribution system, the same that is used in Brigham City today. Some of the operators that worked at this first municipal plant were Julius Wright, Warren Taylor, and C. Elias Jensen.

By 1920 the first municipal plant was operating at full capacity due to increased demands for electric power, and it was decided to build a larger plant.





Figure 43. Brigham City's first municipal power house shown in 1904, the year after it began operation. This plant delivered the first 60 cycle A.C. to the city. High water had washed out the road.

Figure 44. Brigham City's newest power house which was built to utilize the fall of the culinary water when it was increased and re-routed down the north side of Box Elder Canyon. The culinary water flows through this 450 kilowatt plant then into the reservoir on the left.





Figure 45. The old 30" redwood pipeline that served the power house shown in Figures 47 and 48. This line was vulnerable to rolling rocks which on several occasions broke it and caused several bad washouts in the canyon. This line has since been replaced with steel and concrete pipe which are buried for protection through much of the canyon.

Figure 46. Box Elder Canyon showing the first municipal power plant and pipeline grade. The higher pipeline grade currently used for both hydro-electric plants is seen above the old grade.



June 8, 1920, the Knudson Investment Company agreed to sell all rights, titles, and interests in power development in Box Elder Canyon, and on August 31, 1920, a bond election was held at which time the city was bonded for \$200,000.

The plant was to consist of a concrete intake dam at a point approximately 1090 feet north of the section corner common to Sections 21-22-27-28, in Township Nine North, Range One West Meridian, in the head of Box Elder Canyon, a thirty inch water pipe line from intake to the new power house, a distance of approximately 15,002.8 feet.<sup>19</sup>

This plant was built in 1921 and is shown at its dedication January 10, 1922, in Figure 47 and as it appears today in Figure 48. This plant is equipped with two Westinghouse 600 kilowatt generators. They are turned by Pelton impulse turbines each developing 750 horsepower with 575 foot head of water. Operators who have served at this plant include: Orion Eskelsen, Ruel Eskelsen, Julius Wright, Wesley Wight, Cyril Housely, John Booth, Earl Hansen, Ben Olsen, Robert E. Jensen, James Couch, T. Howard Smith, Glen Reeves, Lowell Grover, Vern Stokes, Desmond Christensen, and Robert Drollete.

By 1930 the city's demand for power had grown to the capacity of this plant. Two alternatives were considered for additional power: To install a diesel plant or to buy power from the Utah Power and Light Company. The city council decided to buy power from the Utah Power and Light Company and a contract with this company went into effect on May 1, 1931.

As the demand for electric power has increased in recent years, Brigham City has installed more transformer capacity to enable this increase to be purchased from the Utah Power and Light Company. With the advent of Thiokol and the recent surge of growth in Brigham City,

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<sup>19</sup>Daughters of Utah Pioneers, Box Elder Chapter. History of Box Elder County, p. 266.





Figure 47. Brigham City's second municipal power house shown at its dedication on January 10, 1922. This plant was equipped with two 600 kilowatt generators driven by 750 horsepower Pelton reaction turbines.

Figure 48. The same plant shown above as it appears today. Pelton turbine can be seen through the open door. This plant is still serving well after 45 years of continual operation.



it became necessary to increase the culinary water supply also. New water was developed in Mantua, and it was decided to run the new culinary water line along the same grade as the existing pipe line for the power house. It was planned to run this water through an additional power house and generate electricity with the culinary water also. This new plant was built and is shown in Figure 44. The parallel penstocks can also be seen in this photograph. The new power house is equipped with one generator manufactured by the Ideal Electric Company. Its capacity is 450 kilowatts and is driven by a Leffel reaction turbine which develops up to 750 horsepower.

Orion Eskelsen served as the superintendent of the Electric Department for Brigham City from 1933 to 1962. Lorin Tingey has been the superintendent since that time.

#### Electricity in Perry, Willard, and Tremonton

The Perry Electric Company was organized about the turn of the century. They installed poles and wire and connected to the Brigham City system about 1905. In 1912 the Town Board purchased the electric company. Perry received power from the Brigham City system until about 1950, at which time the Perry electric system was sold to the Utah Power and Light Company. They placed a small substation on their 44 kv line near the mouth of Perry canyon, and have served the community since that time from this substation.

Electricity first came to Willard when a private company built the power house shown in Figure 49. This power house supplied the community's needs until the flood of 1923. Arthur Carlson and Frank Carr were operators at this plant. The Willard plant never ran again after





Figure 49. The old Willard power house as it appears today. Privately owned and operated, it served Willard until the flood of 1923.

Figure 50. This is the devastating flood which occurred in Willard in 1923. The view is looking north along the highway from the turn. The power house shown above never operated again after this flood and Willard has been served since that time by Utah Power & Light Company.



the flood and since that time they have been served by the Utah Power and Light Company. Garland's first electric street lamps were supplied by power from the sugar company's dynamo. The Utah Power and Light Company purchased the Garland Street lighting system and since that time have supplied this area and also Tremonton with electric power. Their lines now extend as far west as Snowville. The Raft River Rural Electric Cooperative, Inc., serves western Box Elder County.

#### The Utah Power and Light Company

The Wheelon plant was built in 1903 at the mouth of the Bear River Gorge to utilize the canal system water during the time it was not used for irrigation. This plant and its water rights were purchased by Utah Power and Light Company which built the Cutler power plant in 1925. Wheelon was replaced by the Cutler plant which used the same water to better advantage. At the time it was completed, Cutler was the largest generating station in Utah and is shown as it appears today in Figure 51.

The Ben Lomond substation of the Utah Power and Light Company is shown in Figure 52. It is located near the south border of Box Elder County, 1 mile west of Hot Springs. This serves as a switching station for the three high voltage (130 kilovolt) lines running north as well as a connecting point for UPL's new Kemmerer steam plant located near Kemmerer, Wyoming. This plant operates from the large open pit coal deposits found near Kemmerer.

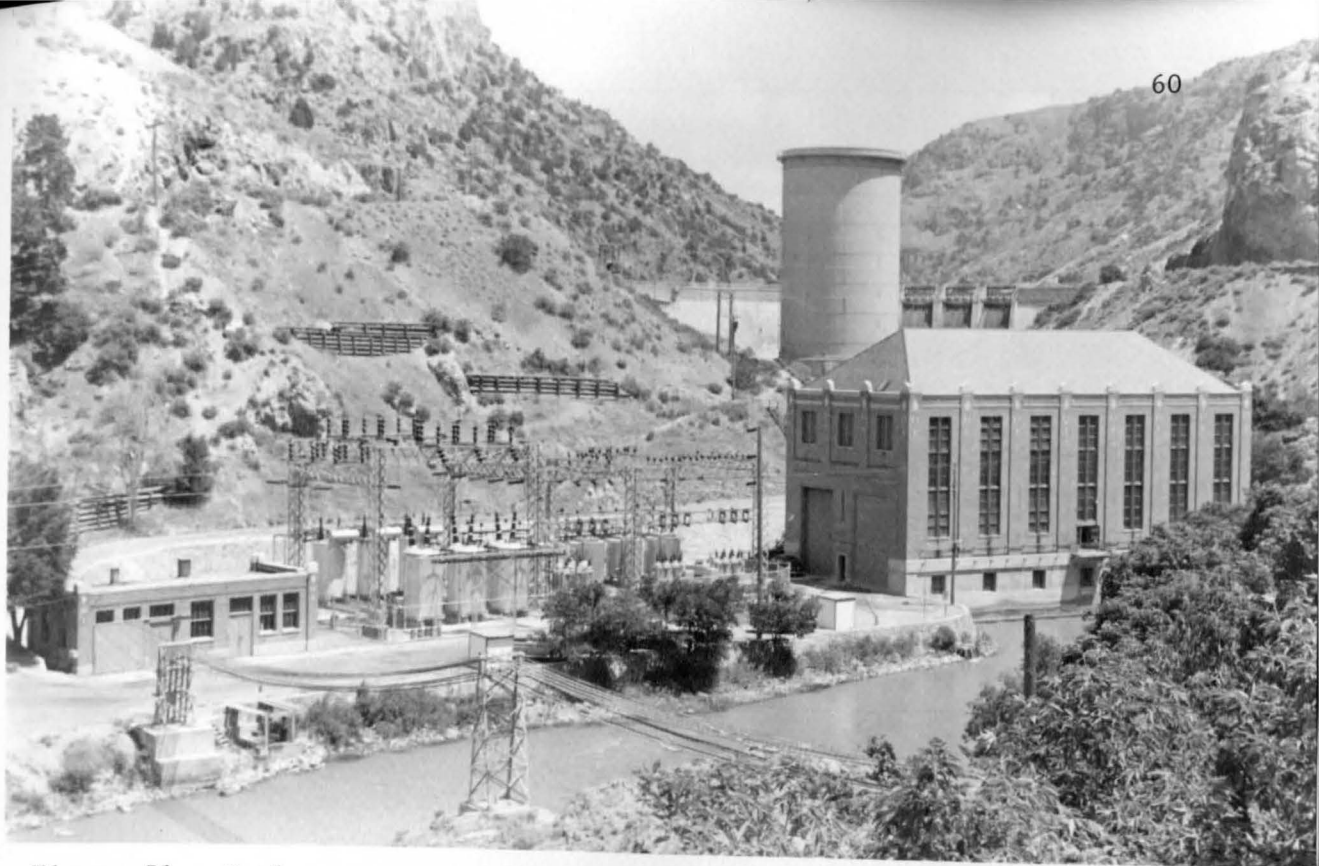


Figure 51. Cutler power station of the Utah Power & Light Company is located at the mouth of the Bear River Gorge. This was the largest generating station in Utah when it was built in 1925.

Figure 52. Ben Lomond substation of the UP&L serves as a switching point and also connects the Kemmerer steam plant with the UP&L system. It is located just below the Hot Springs near the south border of the county.



## Manufacturing--Mills and Factories

### Flour Milling

The first grist mill in Box Elder County was built on the west side of Willard, about midway between the settlement and the lake, in 1851 or 1852. This mill was built by Elisha Mallroy and was operated by water power from Willow Creek. T. W. Brewerton was the first miller.<sup>20</sup> A photograph of the remains of this mill as it appeared about 1930 is shown in Figure 54. Almost nothing remains of this structure today.

Brigham City's first grist mill was built in 1855-56, only 5 years after the first settlers arrived, but did not operate until 1857 due to crop failures the two previous years. Water was taken from Box Elder Creek to power the mill in 1857. Mads Christian Jensen was called by President Lorenzo Snow to operate this mill.<sup>21</sup> In 1892 it was purchased by John H. Bott and converted into a monument mill. A rear view after its conversion to a monument mill is shown in Figure 53. The mill is still operating today and is kept in good repair by Lorenzo Bott and his son Max Bott. It is shown in Figure 20 as it appears today (1966) under the management of Max Bott.

Other grist mills were built by early settlers at various locations. Abraham Hunsaker built a grist mill on Salt Creek in Honeyville. It was located just north of the highway bridge on the west side of Salt Creek. Nothing remains of this mill today. The Honeyville roller

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<sup>20</sup>History of Box Elder County, op cit., p. 127.

<sup>21</sup>Mads Christian Jensen Family History, p. 22.





Figure 53. The first grist mill in Brigham City. This mill was built in 1855 but did not operate until 1857 because of crop failures the two previous years. Mads Christian Jensen (Miller Jensen) was called by Lorenzo Snow to be the first miller to operate this mill which is located on the corner of North Wall and East Wall Streets (later renamed Second North and Fourth East Streets). This mill, being located near the creek in the northeast corner of town, was an outpost for defense against Indian attacks. Guards were posted with guns on the upper floors of this building and in one instance it is reported that while alone in the mill on one occasion, Mads C. Jensen was involved in hand-to-hand combat with an Indian there whom he finally subdued. This photograph of the mill was taken some time after it was purchased by John H. Bott and converted to a monument mill.





Figure 54. The first grist mill in Box Elder County which was built in 1851-52 by Elisha Mallory at Willow Creek (Willard).

Figure 55. The Box Elder Roller Mill. Built in 1890, on Box Elder Creek east of Brigham City, it operated until it burned to the ground on March 18, 1927.



mill, built on the Bear River west of Honeyville, was in operation in 1890. It operated on water power from the canal.

The Box Elder Roller Mills (Figure 55) was built in 1890. The supplier of the machinery for this mill was the Great Western Mill Furnishing Company, Leavenworth, Kansas. The mill was built just below the mouth of Box Elder Canyon, where the dam for the equalizing reservoir now stands. The miller's house was built just across the highway and stood until about 1960 when it burned to the ground. The Box Elder Roller Mill began operation on Tuesday, November 11, 1890, when the water was first turned into the water wheel. It was reported that the machinery started up "smooth and easy" and by Saturday of the same week the mill was turning out high quality white flour.<sup>22</sup> In 1893 this mill boasted the following products: self rising, corn meal, rye, germade, bran and shorts, and chopped grains of all kinds.

On March 18, 1927, at about 9:00 p.m., a person who came down the canyon saw a fire in the Box Elder Roller Mill and quickly summoned Wilford Wilde, the miller who was living in the house across the highway. The Brigham City fire department was quickly called, but the fire had gained too much headway. The mill burned to the foundation in a spectacular fire that even lighted up the mountains east of Brigham City. The fire was believed to have been started by a dust explosion or a spark from the electric wiring. It was said that Wilford Wilde noticed a flicker in the lights a short time before the fire was reported. Carl Seashore drove Brigham City's American-LaFrance fire truck to the scene and while battling the blaze with other firemen he burned his ankle and scorched his face. The loss from this fire

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<sup>22</sup>The Brigham Bugler, November 15, 1890.

was estimated at \$30,000, with \$16,000 covered by insurance.<sup>23</sup> A small chopping mill was later built on the old foundation and operated there for some years after, utilizing the water wheel from the original mill. At the present time the only remaining evidence of the mill is the dry canal bed that carried Box Elder Creek water to the mill's penstock.

In 1909 the sons of Mads C. Jensen, Brigham City's first miller, built the mill shown in Figure 58 on West Forest Street in Brigham City. Interior views of the mill in operation (about 1914) can be seen in Figures 56 and 57. This mill suffered a severe fire in August of 1954, but was soon rebuilt and enlarged at the same time. It has been greatly expanded in recent years as is evident in the current photograph, Figure 59, and is known today as the Big J Mill.

### Dairy Industry

The Brigham City Mercantile and Manufacturing Association (The Co-op) built a dairy about 3 miles northeast of Ben Hampton's Ferry (Collinston) in 1871.<sup>24</sup> Christian Hansen, a Danish convert to the L.D.S. Church, was called by President Lorenzo Snow to manage this enterprise. The main products were cheese and butter. This was the first cheese factory in the Territory of Utah and in the year 1877 was reported to have produced 50,000 pounds of cheese. The dairy as it appeared about this time is shown in Figure 60. It supported 500 cows which grazed on the grassy hills nearby. Thirty girls were employed as milk maids to milk the cows and were paid \$2 per week. Christian Hansen purchased the dairy from the Co-op in 1881 and operated it

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<sup>23</sup>The Box Elder Journal, March 22, 1927.

<sup>24</sup>History of Box Elder County, op cit., p. 107.



Figure 56. The interior of the Jensen Brothers Mill about 1914. Norman Iverson on the left operating the Bran Packer and Elias Forsgren on the right operating the Flour Packer.

Figure 57. The rollers at the Jensen Brothers Mill on West Forest Street in Brigham City. Elias Forsgren who worked at this mill for many years is shown here operating the rolls.

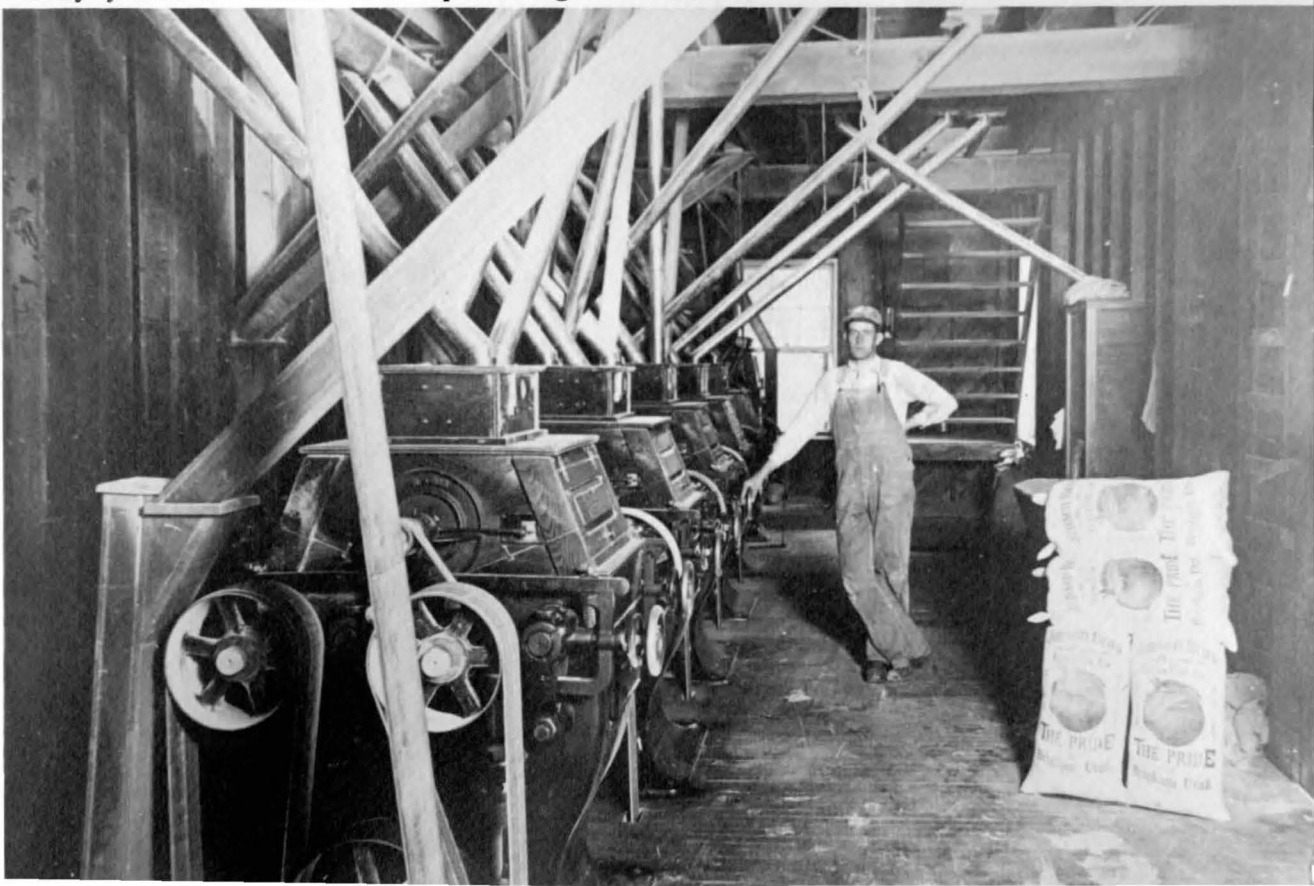






Figure 58. The Jensen Brothers Mill as it appeared in about 1920.

Figure 59. Known as the "Big J" Mill today, the storage and milling capacity have been greatly enlarged. This mill has suffered several fires but each time it has been rebuilt and expanded.





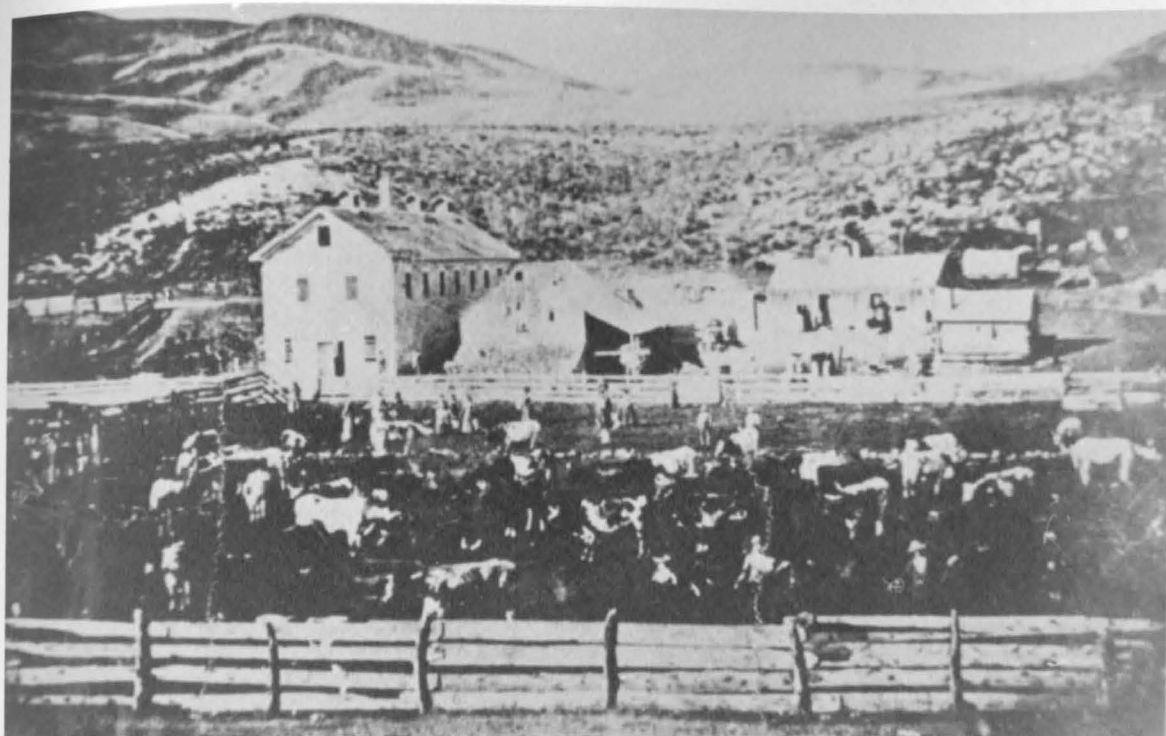


Figure 60. The old Co-op Dairy at Collinston as it appeared in about 1875. This dairy was the first in the Territory of Utah. It was operated by Christian Hansen during the co-op days and later purchased by him. As many as 500 cows were milked here by 30 hired milk maids.

Figure 61. The old Dairy, through showing its years, still stands today as a silent tribute to its pioneer founders.



for several years after. When free grazing privileges were curtailed, just before the turn of the century, the old dairy ceased operation and the surrounding land was used for dry farming by Willard S. Hansen, son of Christian Hansen. The old dairy property is currently owned by Lorenzo Hansen, a grandson, and the old rock building still stands today as shown in Figure 61, a sturdy tribute to its pioneer builders. As the wind whispers through the cottonwoods near the bold building, one need only listen carefully to hear the squeak of a churn, or the milk maids being summoned to their chores at the break of dawn.

The Superior Dairy (Figure 63) currently operating in Brigham City, was founded in 1920 by Frank Holman as the Holman Dairy. In 1922 Frank Earl came into the business as a partner and the name was changed to Superior Dairy. This same year a pasteurizer was installed (the first in Box Elder County) and is shown as it was photographed then in Figure 62. This dairy bottled milk and produced butter for many years and in 1935 to 1940 manufactured casein from skim milk. It is currently operated by Rex Earl and Robert Call and distributes all dairy products throughout Box Elder County as far west as Snowville.

#### Leather Tanning and Leather Products

The Tannery was one of the first enterprises of the old Co-op. It was in operation by 1870 and producing fine leather under the management of Abraham Hillman. It operated until the 1880's and after standing idle for several years it was purchased by Fred Hillman, William Kemp, and W. J. Kemp on September 21, 1891, for the sum of \$1,000.<sup>25</sup> Fred Hillman operated a wool pulling firm in this building until after

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<sup>25</sup>The Brigham Bugler, Sept. 26, 1891.

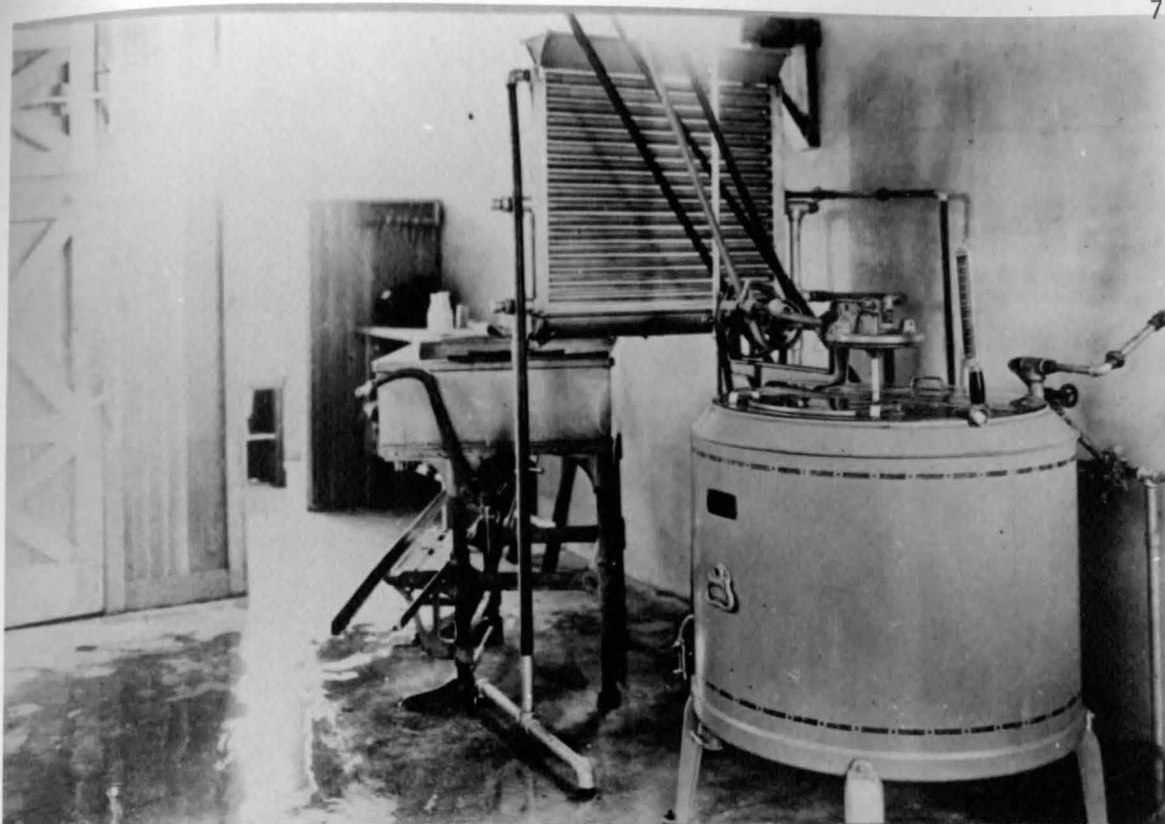
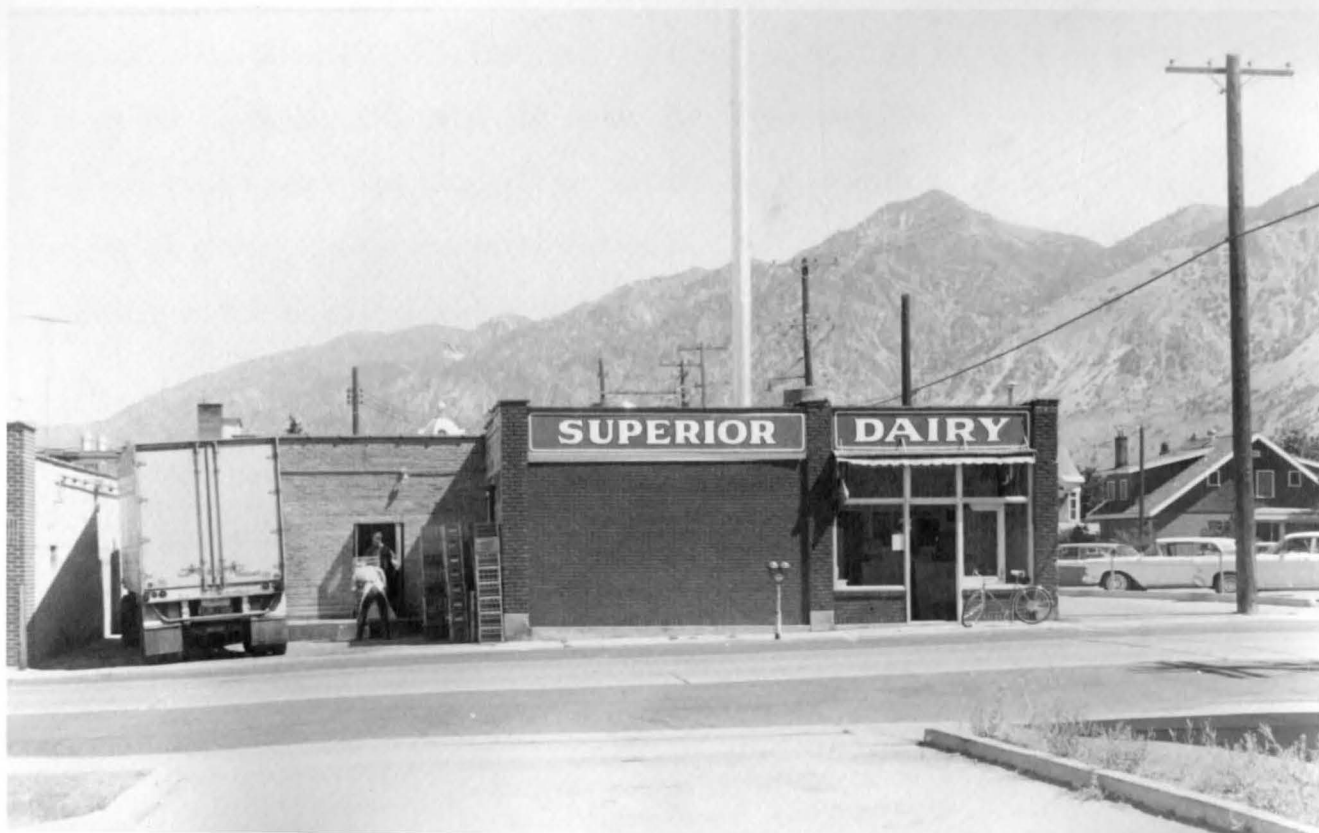


Figure 62. The interior of the Superior Dairy in 1922. In the foreground is the pasteurizer (first in Box Elder County) followed by the cooler and bottle filler.

Figure 63. The Superior Dairy today. It has been in operation for 46 years and at one time manufactured casein from skim milk.



1904. The old Tannery is shown as it appeared in about 1920 in Figure 64. After standing idle and deteriorating for many years, it was partially destroyed by fire on January 10, 1966. The damage done by the fire can be seen in Figure 65 as it appeared a few days after the fire.

In 1870 the Boot, Shoe, and Harness Factory was built to utilize the leather output of the Tannery. This factory also produced hats and brushes. The factory can be seen in Figure 66 as it appeared in about 1875 with most of the 30 employees standing in front for the benefit of the photographer. The ladies were employed in the hat department. A rare photograph, taken inside this factory, is shown in Figure 67.

#### Cabinet Manufacturing

Figure 68 is a view looking up Forest Street about 1895 as seen from the top of the old Courthouse. The Boot, Shoe, and Harness Factory is shown on location as well as Merrell's Mill with its penstock crossing the head of Forest Street. Merrell's Mill as it appears today is shown in Figure 69. The old rock and adobe building is still in fairly good repair and the cabinet makers there turn out quality work. Although water rights are still defended, the old wooden penstock is missing and the mill is now powered by electricity.

#### Woolen Mills

The Baron Woolen Mills, located in Brigham City, was first built by the Co-op and began operating in 1871. It burned in 1877 but was completely rebuilt in six months' time. It stood idle for some time





Figure 64. The old Tannery was built in 1870 at the beginning of the cooperative movement. It was reported to have produced leather as fine as any eastern oak tanned.

Figure 65. The old Tannery today stands in ruins. After being idle for many years it was partially destroyed by fire on January 10, 1966.







Figure 66. The Boot, Shoe and Harness Factory of the Cooperative was built in 1870 to utilize the leather output of the Tannery. It also produced hats and brushes as shown here in about 1875. Nothing remains of this building today which stood on East Forest Street in Brigham City. It faced south on the corner of Fourth East and Forest Streets, just to the west of the school gymnasium location today. This block also was the location of other co-op industry buildings.



Figure 67. A rare photo taken inside the factory shown above. The old brush-maker, John Miles, is seated at the bench. Olof Petersen is the boy standing left center. The young lady was probably an employee of the Hat Dept. as were the ladies in the photo above. Compare the sign with the one in the photo above on the left side of the building, probably being held out for the benefit of the photographer. This factory employed 30 workers who had produced \$132,000 worth of goods by 1877.



Figure 68. Looking up East Forest Street about 1895. Merrell's Planing Mill can be seen at 6th East with its wooden pipeline crossing the head of Forest Street. The Boot, Shoe and Harness Factory is seen standing idle at 4th East, and the John D. Rees home (first home built outside the old fort) at 3rd East. The gravel hill just beyond East Forest Street had hardly been worked. A few loads may have been hauled away as seen on the far right of the photograph.

Figure 69. Merrell's Planing Mill as it appears today (1966). It is still in operation and kept in good repair.



after the Co-op closed but reopened seasonally and did custom work in the 1890's under the management of James Baron. Thomas Baron purchased the mill in 1916 from the stockholders and it has been operated since that time by his sons, Rulon and Clark Baron, and grandsons Lowell, Dale, and Rex Baron. The woolen mills has burned and been rebuilt three times, the most recent fire being in 1950. At that time a sprinkling system was installed in order to prevent further fires. The Baron Woolen Mills as it appears today (1966) is shown in Figure 70. It currently employs 25 people and manufactures blankets, car robes, and saddle blankets and also conducts a retail business of ready-to-wear clothing for men, women, and children. The growth of this company, as well as its steady employment of local people, is a boon to the economy of Brigham City as well as a tribute to the Baron family.

#### Sugar Refining

After raising sample crops of sugar beets in Fielding and Tremonton in 1901 and 1902, the Utah-Idaho Sugar Company built the Garland factory in 1903. This factory is shown as it appears today in Figures 72 and 73.<sup>26</sup> It set a new high record for sugar production in the work season 1965-66 which ended on February 1, 1966. The factory ran for 117 days and produced 90,100,000 pounds of sugar. The previous record was 88,300,000 pounds produced in the 1963-64 season.

The Brigham City Sugar Factory was built in 1916 by the Utah-Idaho Sugar Company. This factory (Figure 71) did not operate every year, but was used until 1933 when it suffered some damage from fire

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<sup>26</sup>History of Box Elder County, bp cit., p. 53.





Figure 70. The Baron Woolen Mills in Brigham City as it appears today. Notice the old rock walls at the rear of the main building. These are the original walls of the old building erected by the Co-op in 1870.

Figure 71. The Brigham City Sugar Factory. Built in 1916, this factory operated until 1933. Nothing remains of this building today.





Figure 72. The Garland Sugar Factory of the Utah-Idaho Sugar Company.

Figure 73. A view of the Garland Sugar Factory looking northeast.





and never ran again. The main reason for the discontinuance of this factory was the lack of sugar beets in this area; also the company decided they could operate more efficiently by enlarging the capacity of the Garland factory to handle all of the beet crop in the county. Nothing remains standing today of this once busy factory except the old tin warehouse which was built on the east part of the main building.

### Apparel Manufacturing

The American Sportswear<sup>27</sup> was operated for many years on the second floor of the Coronets store at 63 South Main Street in Brigham City. This company produced men's leather jackets. William Kirschbaum founded this business in about 1940 and later moved it to the Dance Bowl building on North Main Street shown at the left in Figure 74. This company later expanded their firm and built a new building just south of the old building as shown in Figure 74.

On January 1, 1966, the American Sportswear was sold to Siltan Brothers of Los Angeles and the name of the business was changed to Brigham Apparel. Since Siltan Brothers purchased the business it has been expanded further into the building formerly occupied by the Thiokol procurement section at 1080 North Main, Figure 75. Brigham Apparel currently manufactures men's, ladies', boys' and girls' jackets. Leather and various fabrics are used for materials. This industry currently employs 200 people, approximately 180 of whom are women. It is a real asset to the economy of Brigham City. The manager is Oscal Grunig and the office manager is Palmer (Bud) Siegfried. The output of this

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<sup>27</sup>Personal knowledge and information obtained from interview with present (1966) office manager.



Figure 74. The American Sportswear was located in the Dance Bowl building. (This building was originally built as the Christensen Brothers Academy of Music.) After several years it expanded into the new building on the right.

Figure 75. American Sportswear sold to Silton Brothers on January 1, 1966, changed the name to Brigham Apparel and expanded into this building.



industry is marketed all over the United States and some exported to the Far East.

### Rocket Motor Manufacturing

A recent and very interesting industry to locate in Box Elder County is Thiokol Chemical Corporation. This industry was founded in the East in 1929. It began its rocket facilities in Utah in 1956. Thiokol developed synthetic rubber, so necessary for the armed forces during World War II.

On April 30, 1956, Thiokol announced its plans to build a \$15,000,000 research and development center for large solid fuel rocket motors on a 12,000 acre tract of range land located 27 miles west of Brigham City. The first phase of construction was concerned with exploration at the site for suitable water. The first wells produced only brackish water and it was feared that fresh water could not be found and that this factor would discourage locating the industry here. Fresh water was developed when the third well at the site was announced as a good produced. Additional fresh water was later developed several miles south along the Promontory mountains. In October of 1956 construction began on the buildings, roads, and water lines as contracts totaling \$300,000 were awarded. The Utah Power and Light Company began construction on a 14 mile power line to supply electric power to the site.

Thiokol officially opened its doors in Utah on October 17, 1957. Two years later in November of 1959, Thiokol was awarded the production contract for the first stage of the Minuteman Intercontinental Ballistic Missile. By this time the company had spent \$77,000,000 on the research and development work for the Minuteman propulsion system. In order to

produce this first stage motor, a production activity known as the Wasatch Division was created. A new facility was planned to be built in Howell Valley to produce the Minuteman first stage. This plant, officially named "Air Force Plant 78" was completed in 21 months, and was dedicated in July 1962. It featured automated batch mixing and boasted two 13 million electron volt linear accelerators used to radiographically inspect fully loaded motors for minute flaws in the propellant or the motor case. When completed, Air Force Plant 78 consisted of 112 buildings and 12 miles of paved roads.

It was a memorable day at Thiokol and all of Box Elder County as well when in February of 1961 the Minuteman ICBM, its first stage produced at the Wasatch Division, thundered to a spectacular success in its first full scale flight at Cape Canaveral.

On March 10, 1964, Thiokol announced the loading of the 1,000th Minuteman first stage motor. Although Thiokol has reduced its labor force considerably in the last few years, it has continued to develop greater rocket motors. It produced the world's most powerful solid fueled rocket motor and successfully test fired it on December 12, 1964. Shown in Figure 78, this 156 inch diameter space booster motor containing 700,000 pounds of solid propellant produced 1.5 million pounds of thrust during a 2-minute burning time. The author observed this firing from the press stand located 6,000 feet away and it was spectacular to say the least. The roar was awesome and the rapid gimbaling of the nozzle during the firing was easily observed. All of the program objectives were met in the test which included: 1) demonstration of the largest segmented motor, 2) demonstration of





Figure 76. Construction began in 1956 on the multi-million dollar Thiokol complex located 27 miles west of Brigham City.

Figure 77. Air Force Plant 78 was built as a production plant for the Minuteman ICBM first stage.







Figure 78. World's most powerful solid-fueled rocket motor. Successfully test fired on December 12, 1964, it produced 1.5 million pounds of thrust for a 2-minute burning time.

Figure 79. Rocket motor fuel is mixed, producing a thick batch which is poured into the motor case and then cured like synthetic rubber.



successful scale-up to the world's largest omniaxial gimbaled nozzle, and 3) development of a launcher retained ignition system.

## Transportation

### Early Transportation and Freighting

Corinne grew rapidly after the railroad came in 1869. Figure 80 is a photograph of Corinne about 1871. The wagon train and the men on horseback typify the early modes of transportation. A freight wagon of about 1912 is shown in Figure 81.

The blacksmith shop was vital to transportation in the early days. It was here that the wagons and buggies were repaired and new iron tires fitted on the wheels. Horseshoeing, almost a lost art now, was a common trade at that time. The first automobile owners naturally went to the blacksmith shop when their horseless carriages developed trouble and the blacksmith found it necessary to learn new skills to keep up with the times. Typical blacksmith shops before and after the turn of the century are shown in Figures 82 and 83.

### The Automobile

Shortly after the turn of the century, the first automobiles appeared on the streets of Brigham City. The Box Elder News, June 23, 1904, reported the following:

Last Sunday the Automobile Club of Ogden made a trip to this city and put in a most enjoyable day here. The part comprised eleven autos and about thirty people and were met near the south line of the city by Dr. Rich and Mr. and Mrs. Edwards in their machines. Mrs. Edwards headed the procession through the principal business streets and the party finally lined up in front of the Compton Art Gallery where they had their picture taken.



Figure 80. Corinne about 1870. All the freight wagons from the rich mining towns to the north met the train here. The muddy street and the boardwalks were typical of that day.

Figure 81. An early day freight wagon and team.

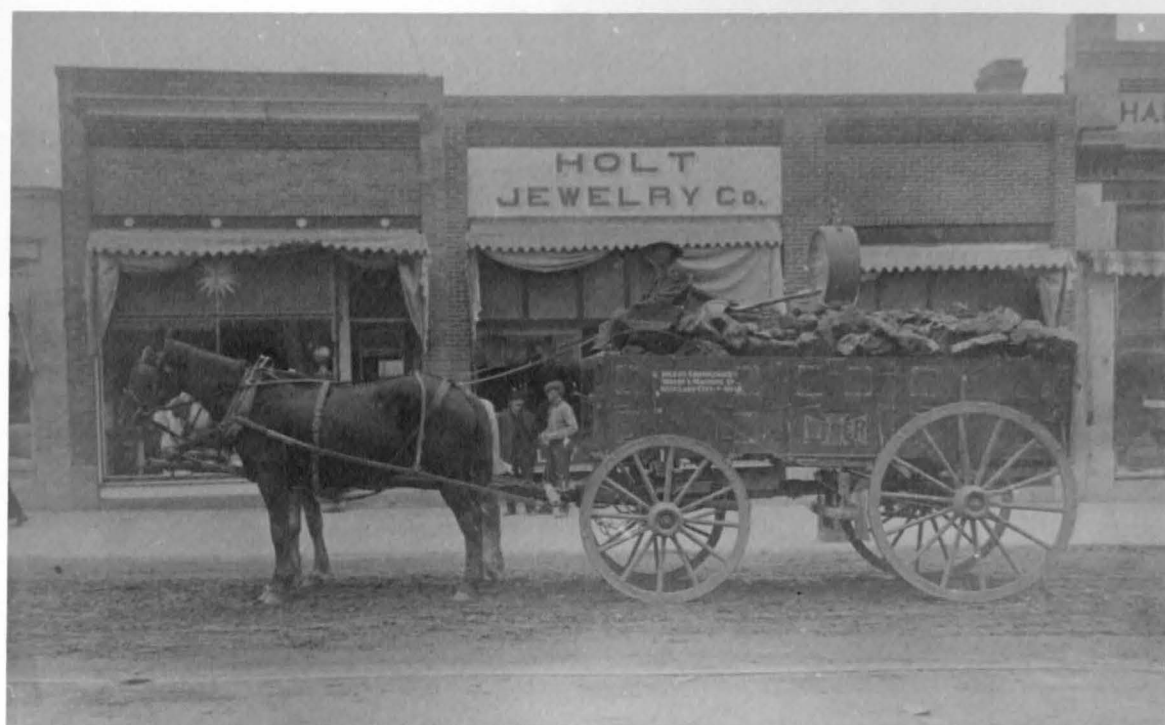






Figure 82. The old Co-op Blacksmith & Wagon Shop was a busy place which provided vital services to early forms of transportation.

Figure 83. These were the closing years of the blacksmith shop. The horseless carriage would soon take over. John Youngquist, with arms folded, was the owner of this shop which was located ironically where the Honda Shop is now located in Brigham City (52 North Main Street).



The photograph as taken by A. W. Compton is shown in Figure 84. The news article went on to say that the group enjoyed a meal at the Utahna Hotel before returning to Ogden. Peter Edwards owned the first auto in Brigham which is shown fourth from the right in the photograph. Dr. Rich owned the second one and his machine is the first on the right.

Today the auto industry is one of the largest industries in the country. A typical auto dealer and garage in Brigham City today is shown in Figure 85..

### River and Lake Travel

By the late 1860's there were several boats navigating the waters of Great Salt Lake. These were built primarily for commercial freighting purposes. The lake level was on the increase at this time, reaching its highest recorded level in 1873. After the wedding of the rails in 1869, Corinne was considered to be a good point for the lake vessels to meet the rails. By late 1869 several of the lake boats had navigated the Bear River up to Corinne.

Some of the Corinne townspeople became interested in building a steamer and organizing themselves into a company. They employed Fox Diefendorf to build the "City of Corinne" for \$46,000. She was built (a sternwheeler, steam powered and 130 feet long) on the river bank east of Corinne. After some problems and delays, the ship was finally launched on May 23, 1871. A month later it began making scheduled trips to Lake Point, a port near Farmington.<sup>28</sup> The "City of Corinne" is shown in Figure 86 leaving the dock at Farmington. Freighting and passenger

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<sup>28</sup>SUP News, vol. 6, no. 4-5, p. 35.





Figure 84. The Ogden Auto Club visiting in Brigham City on June 19, 1904. The first autos in Brigham (first and fourth from the right) were owned by Peter Edwards and Dr. Rich. Alma W. Compton took this photograph in front of his photo studio.

Figure 85. The automobile industry has grown enormously. This is Hansen Chevrolet, a typical auto dealer in Brigham City today.



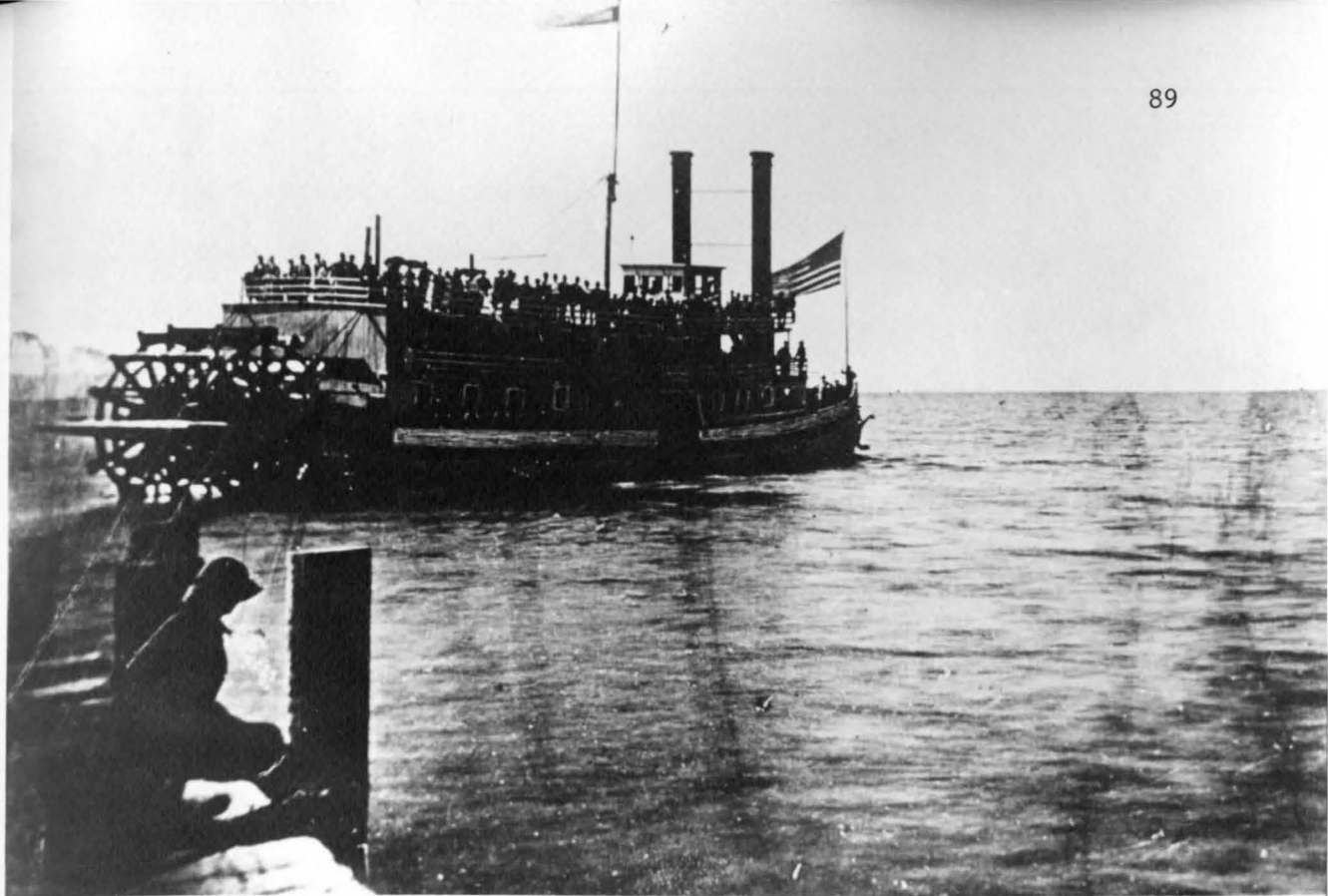


Figure 86. The proud steamer "City of Corinne." Built and launched at Corinne in 1871, she is seen here sailing from Lake Point (Farmington).

Figure 87. Re-named "The Garfield," and stripped of her stern wheel and stacks, the old steamer served her last days as a hotel and cafe at Garfield Dock. She was consumed to the water line by fire at this location about the turn of the century.



service was inadequate to support continued operation, also the numerous curves in the Bear River made it awkward to navigate. The "City of Corinne" was sold in 1872 and changed hands several times after this before tying up at her final resting place, Garfield dock. She was renamed the "Garfield" and used some for freighting but mostly for excursions on the Great Salt Lake until the 1880's. Stripped of her stacks and picturesque stern wheel, she served her last days as a hotel and cafe for bathers as shown in Figure 87. She was destroyed by fire, burning to the water line about the turn of the century.

### Railroads

The events associated with railroad in Box Elder County have been interesting and exciting through the years. The meeting of the rails at Promontory, the building of the great railroad trestle across the lake, and recently the causeway to replace the trestle, are all represented here in photographs.

In early 1869 the culmination of a six year struggle to join the East and West by rail was approaching a climax. April 26, 1869, saw the Union Pacific pushing west near Lamo (Figure 96) approaching the grade up the east slope of the Promontory Range. At the same time the Central Pacific had passed Monument Point (Figure 90) on the north shore of the lake and was rounding Spring Bay and approaching the grade onto the Rozel Flats. It was reported that J. H. Strobridge wholed the Central Pacific construction crew, made a bet with a Union Pacific official that his forces could lay 10 miles of track in one day! The wager was accepted and on April 28, 1869, after careful

organization and massing of materials and manpower, Strobridge began the push. Ties were brought quickly forward by horse-drawn wagons and the rails moved up on flat cars over the newly laid rails. Forward observers of the Union Pacific crew watched in amazement as 8 stalky Irishmen, 4 on each rail, hefted them from the flat cars and dropped them quickly in place on the waiting ties. By the end of that day victory had been achieved, slightly over 10 miles of track had been laid.<sup>29</sup> Figure 89 shows the point where 8 tired Irishmen dropped the last of 1,000 tons of rails that day, and where hundreds of weary Chinese workers also claimed their victory for a feat that had never been equaled in the history of railroading. J. H. Strobridge and part of his crew are shown in Figure 88 at camp "Victory" (later named Rozel), probably the day after this historic event.

As the day approached for the joining of the rails, Leland Stanford, President of Central Pacific, and other officials came east over the new railroad to participate in the ceremonies. His train with its historic engine "Jupiter" paused for a photograph, Figure 90, at Monument Point on the north shore of Great Salt Lake. A wagon train was also passing this point going west and the new means of transportation can be seen passing the old. In Figure 91 is shown the last gap in the rails, probably the day before the driving of the golden spike.

After some delay, caused by poor weather and other circumstances, the day for the official joining of the East and West by rail finally arrived. May 10, 1869, saw the skies clearing and the gathering of a large crowd at Promontory Summit. This crowd has been variously estimated

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<sup>29</sup>SUP News, Vol. 6, No. 4-5, p. 17.





Figure 88. Camp Victory, later named Rozel. J.H. Strobbridge, in the foreground on the flatcar, led his Central Pacific crew to lay 10 miles of track in one day.

Figure 89. This is the point, a few miles east of Camp Victory, where 8 tired Irishmen dropped the last of 1,000 tons of rails that day and where hundreds of weary Chinese workers also claimed their victory.





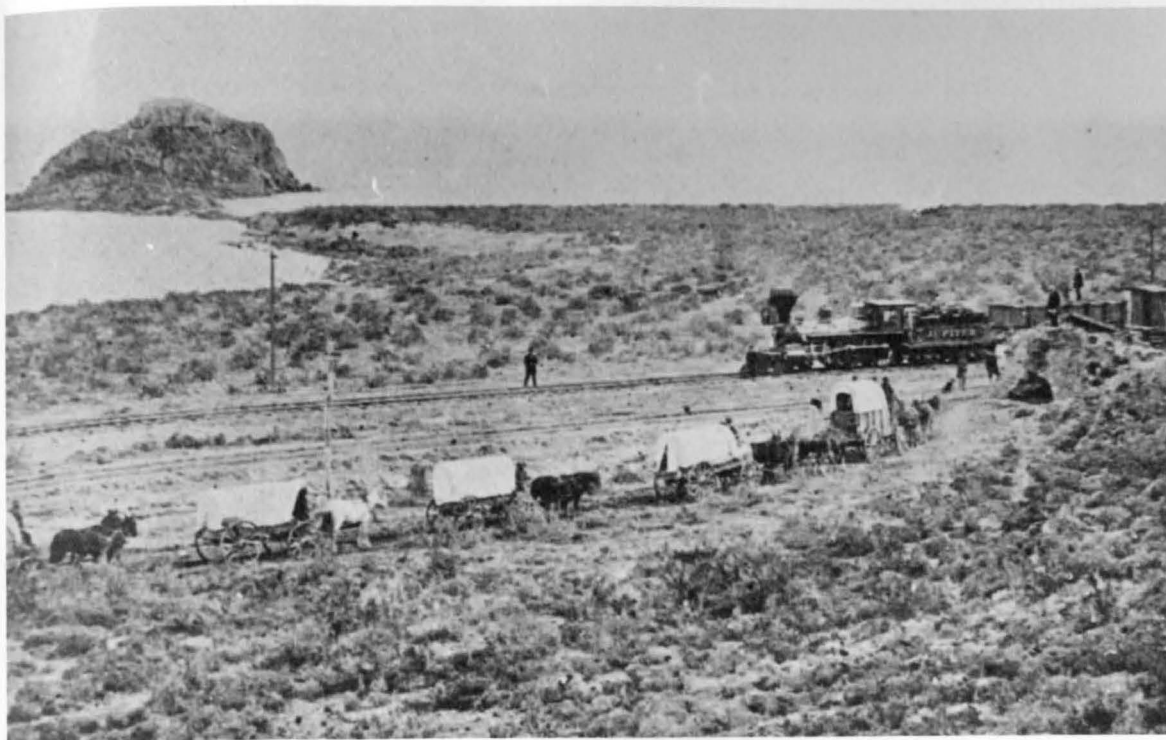


Figure 90. Governor Leland Stanford, President of the Central Pacific, and the famous engine "Jupiter" enroute to the Golden Spike ceremony. The location is Monument Point on the northern tip of Great Salt Lake. The wagon train would soon be replaced by the much faster railroad.

Figure 91. May 9, 1869, saw only this short gap in the rails which were to be united on the next day.



at from 600 to 1500. The Western Union Telegraph Company announced that the event would be instantly carried by telegraph from coast to coast. About noon, workmen of both companies laid the ties, closing the gap except for the last one which was of polished California laurel. This tie was positioned by John H. Strobridge of Central Pacific and Samuel B. Reed of Union Pacific.<sup>30</sup> Next the closing rails were laid into position by workmen from both companies and spikers drove the spikes in all but the laurel tie. There was then a presentation of spikes, some gold and some silver, by various officials. At 2:27 p.m. the message was telegraphed to the East and the West: "Almost ready. Hats off, prayer is being offered." The dedicatory prayer was offered by Reverend Dr. John Todd. Telegraph wires were connected to the silver maul that was used to drive the golden spike and also to the spike so that the blows would be sent instantaneously by telegraph from coast to coast, announcing this historic event to a waiting nation. Leland Stanford, Governor of California and President of the Central Pacific, was to deliver the first blow. He swung and missed. Dr. Durrant was then handed the maul and he swung and also missed. One can only imagine the effect this may have had on the experienced spikers present. It was reported that the maul was then handed back to Governor Stanford who swung and hit the spike, sending the telegraphic "dot" to a waiting nation, announcing that the rails were joined. At 2:47 p.m. Promontory Summit gave the signal "Done" and the following message was sent:

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<sup>30</sup>SUP News, Vol. 6, No. 4-5, p. 33.

Promontory Summit, Utah, May 10: The last rail is laid!  
The last spike is driven! The Pacific Railroad is completed!  
The point of junction is 1,086 miles west of the Missouri  
River and 690 miles east of Sacramento City.

Leland Stanford  
Central Pacific  
T. C. Durant  
Sidney Dillon  
John Duff  
Union Pacific<sup>31</sup>

Amid the crowd, both engines, the Central Pacific "Jupiter" and the Union Pacific "119," moved slowly forward until they touched. Colonel C. R. Savage took what has been acclaimed as the most popular western photography which is shown here as Figure 92. Later the crowd dispersed to the concessions and taverns that had been hastily built nearby, paralleling the tracks as shown in Figure 93. The laurel tie was removed immediately after the ceremony for preservation and in its place an ordinary tie was installed. No sooner was this done than souvenir hunters hacked it to pieces and another had to be substituted. It was reported that this tie had to be replaced many times during the months following this historic event.<sup>32</sup> Various scenes along the old railroad near Promontory are shown in Figures 94 through 101.

The route around the north end of Great Salt Lake required climbing the grade over Promontory Summit and also over the grades by Peplin and Matlin mountains between Kelton and Terrace. If a trestle could be built over the Great Salt Lake the railroad could run in an almost straight line from Ogden to Lucin. This would reduce the distance by many miles and eliminate the climb over the mountain passes north of the lake. The advantages of crossing the lake were soon recognized

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<sup>31</sup>History of Box Elder County, *op cit.*, p. 28.

<sup>32</sup>Ibid., p. 29.



Figure 92. This famous photo, taken by C. R. Savage, shows the Central Pacific "Jupiter" on the left and the Union Pacific "119" on the right. The Chief Engineers of the two railroad companies, S.S. Montague and G.M. Dodge shaking hands. Promontory, May 10, 1869.

Figure 93. This was Promontory, Utah, in 1869. Today only sagebrush and grain fields occupy this site.

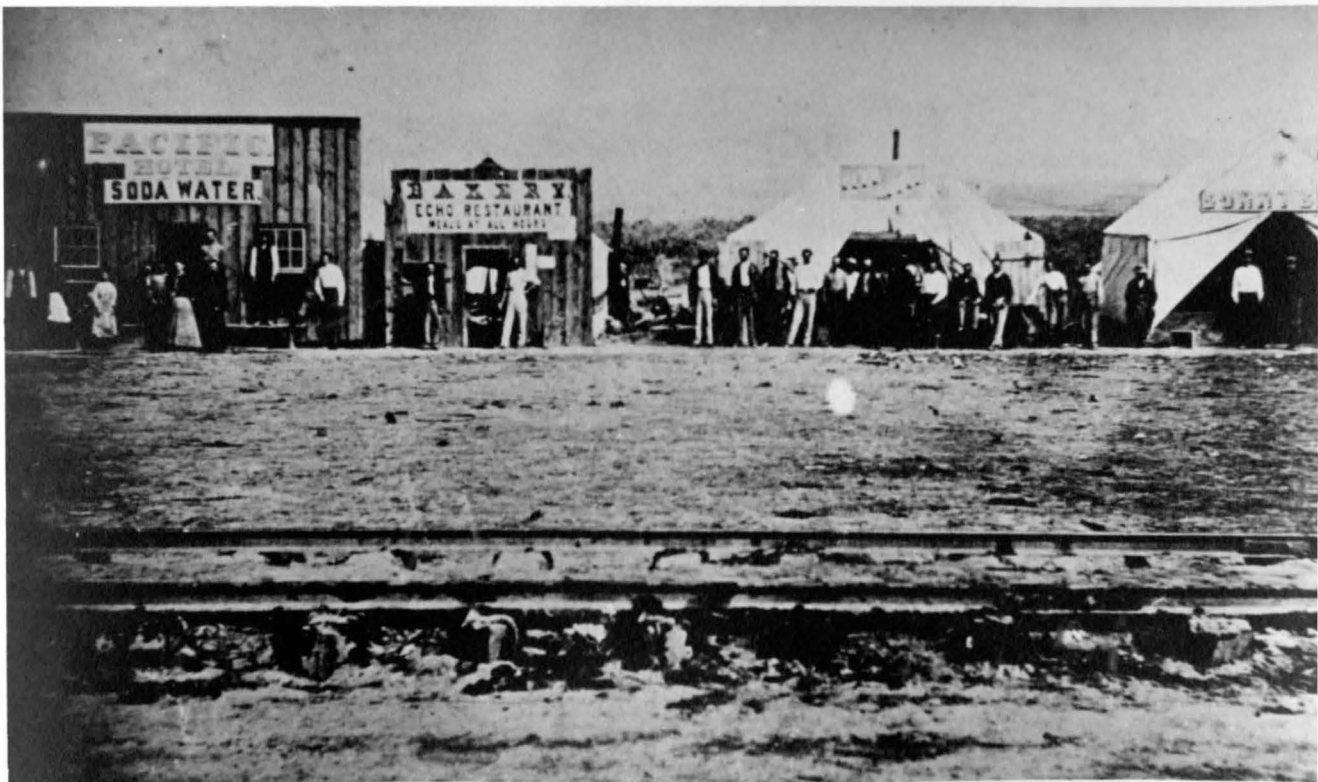






Figure 94. Promontory as it appeared after the "Wedding of the Rails" in the latter part of 1869. The mountain profile in this photograph can be compared with that in the current photograph below.

Figure 95. Promontory as it appears today (1966). The Golden Spike Monument is seen in the foreground.







Figure 96. Lampo in 1869. This is where the west bound trains began the climb to Promontory Summit.

Figure 97. Lampo today. The mountain profile can be compared with the one in the photo above. Thiokol Chemical Corporation is just to the east of this site.



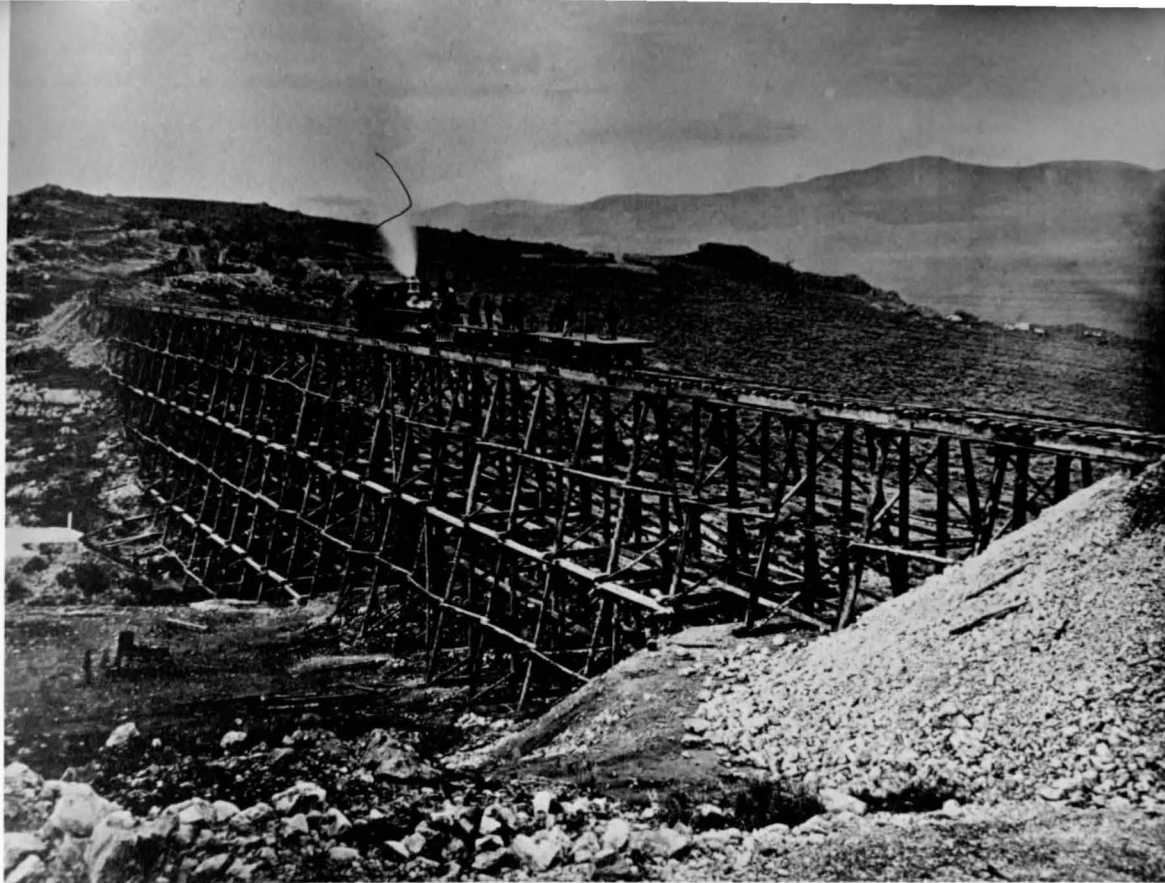


Figure 98. The "Big Trestle." This was located a few miles west of Lamo on the climb to Promontory Summit. Union Pacific Engine 119 and crew pose for the photographer in this 1869 photo.

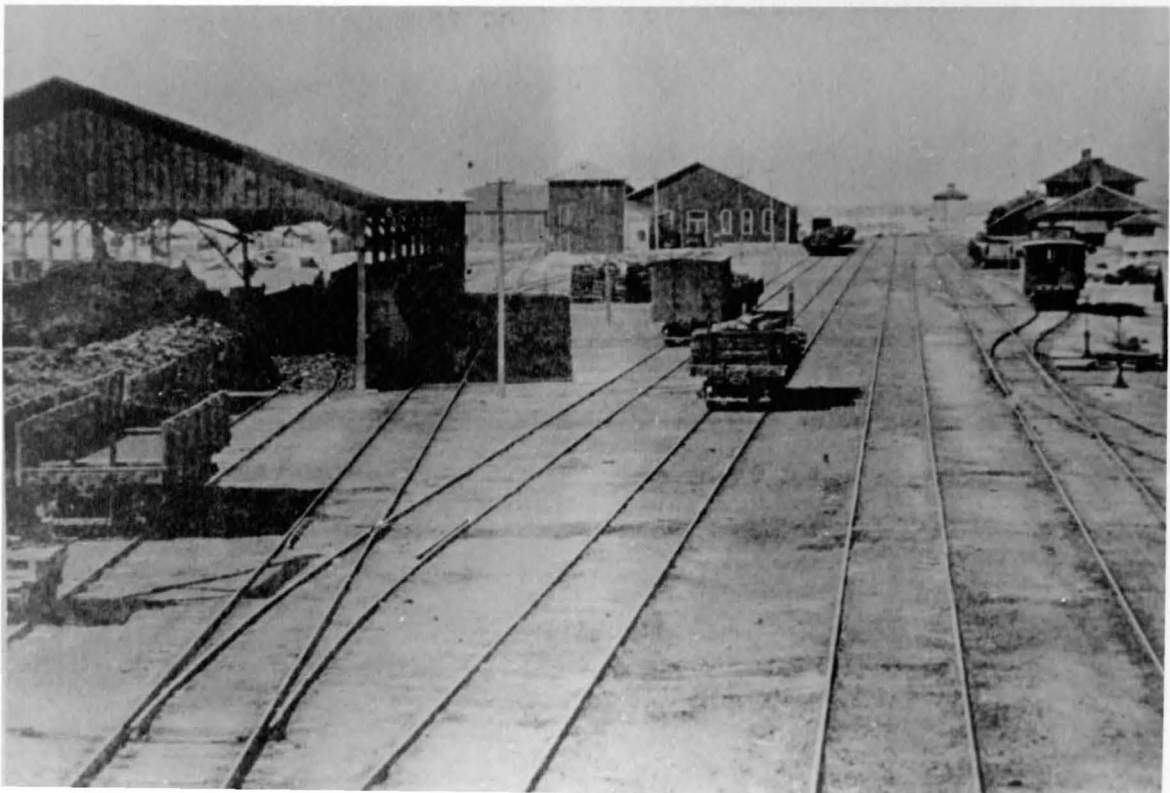
Figure 99. The location of the big trestle as seen from the same point today, nearly 100 years later. Only the ramps to the trestle remain. The mountain profile can be compared with that shown above.





Figure 100. The "Big Fill" of the Central Pacific as it appears today. This was located just above the Union Pacific's "Big Trestle" and spanned the same ravine. It was reported that 500 Mormons worked with 250 teams of horses for 2 1/2 months to complete this fill. A Jeep is parked in the center of the fill on the road which has replaced the rails.

Figure 101. This is Terrace, Utah, in 1878. It is located south of Park Valley and about 70 miles west of Promontory. Nothing is left standing here today except some of the markers in the cemetery on the hill.





and the great trestle was built in 1902. It was constructed from both sides toward the center and took only six months to complete. Two views of the last piles being driven to complete the trestle are shown in Figures 102 and 103. Three thousand men were employed on this project. A construction gang working on the trestle is shown in Figure 104. The new route across the lake from Ogden to Lucin was named the Lucin Cutoff. A station was built on pilings in the middle of the trestle and in the early days trains would stop allowing the passengers to get off and view the lake as shown in Figure 105.

In recent years trains have been required to reduce speed while crossing the trestle, although its pilings have been well preserved by the salty brine. The trestle has also been ravaged by several fires; however, it was always quickly repaired and rail service restored. Figure 106 is a view of the trestle as it appears today (1966).

A rock and gravel fill has been built to replace the aging trestle. It required three years to complete (1956-1959). Views of the construction are shown in the Minerals Section in Figures 22 to 25, and a train crossing the rock fill is shown in Figure 107.

With the coming of the rails to Utah, a railroad was soon built from Ogden to Salt Lake City. This was called the Utah Central Railroad. One of their early engines is shown in Figure 109.

The Utah Northern Railroad Company organized to extend the rails from northern Utah into southern Idaho. They began construction at Three Mile Creek (now Perry) in 1871 and completed the rails north through Brigham City, over the Collinston hill, and on to Franklin, Idaho, in 1874. By 1878 construction was begun to extend this line on



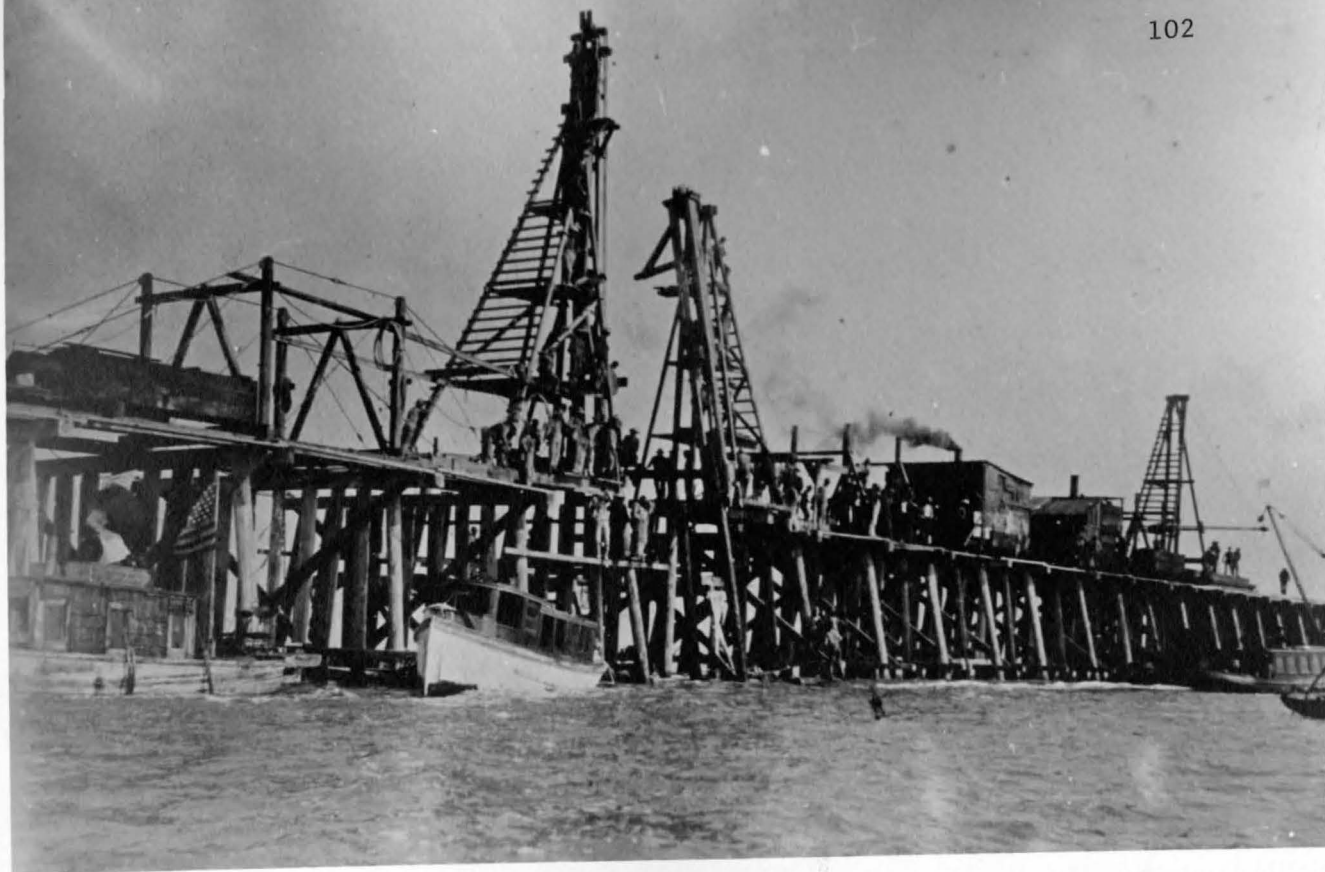


Figure 102. Pile drivers completing the Lucin Cutoff trestle in 1903. Work proceeded from both shores toward this meeting point. This view is looking northeast.

Figure 103. The same event pictured above from a different view looking northwest. A total of 38,256 piles were used in this construction across the Great Salt Lake. Trestle cost was \$4,500,000.

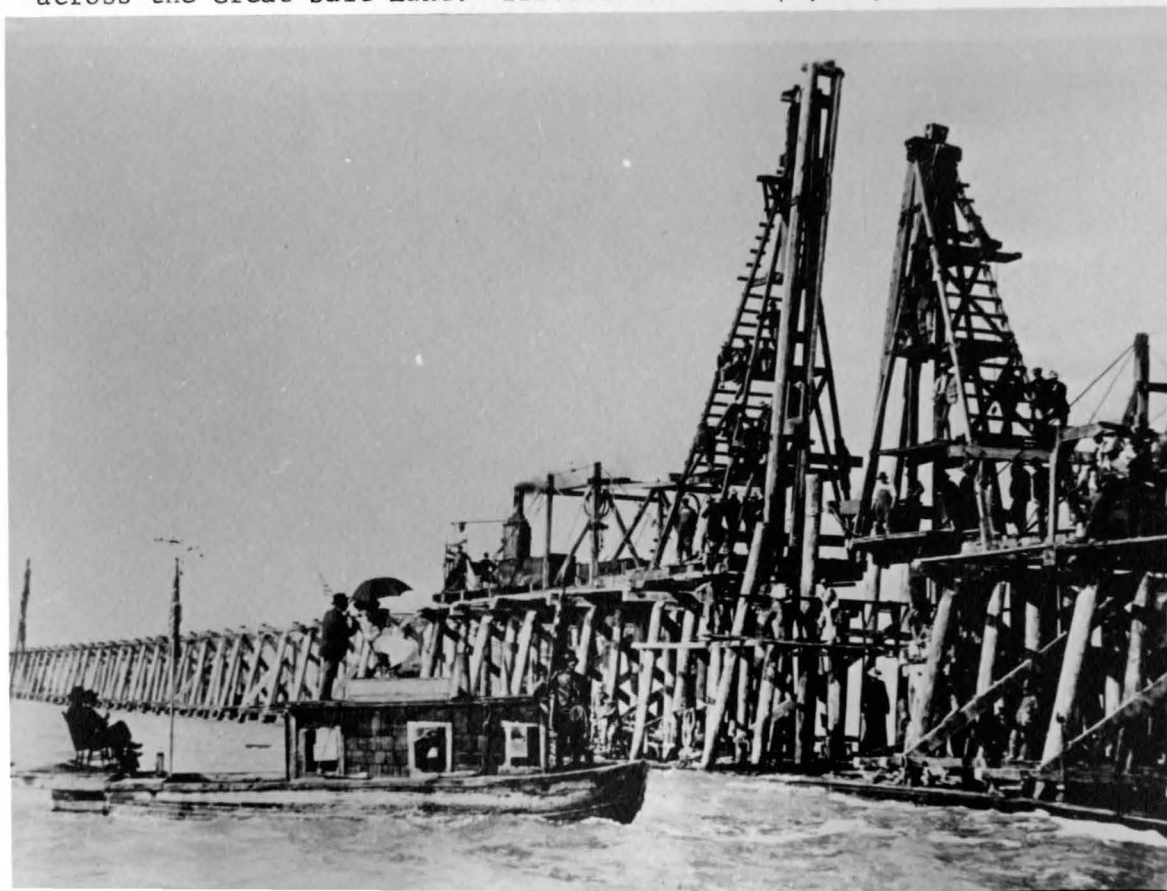




Figure 104. The great trestle shown under construction across Great Salt Lake in 1903. This view is looking west.

Figure 105. Midlake Station on the great trestle in about 1908. The passenger trains stopped here in the early days and let the passengers enjoy the splendid view of the lake from this point.





Figure 106. Some trains still cross the trestle today (1966). Salt formation can be seen on the pilings near the water line. This view was taken from the east end of the trestle looking west.

Figure 107. A freight train coming in from the west on the new rock fill causeway that was built to replace the aging trestle. Cost of the new causeway was \$49 million.







Figure 108. Canal construction work through the Bear River Gorge. The old wooden railroad trestle, built in 1890, can be seen across the gorge. Snow slides were a menace to early trains that traveled this fearful route.

Figure 109. This old "Diamond Stack," on the Utah Central, is typical of the early engines that puffed through Box Elder County.





north into Montana. This was a narrow gauge line which was changed to broad gauge in 1890. When the broad gauge was installed it was laid over, or straddle, the narrow gauge which prevented any interruption of train service. At this time the grade was also changed from over Collinston hill to the route currently used through the Bear River Gorge. The canals, for irrigation in the Bear River Valley, were also under construction about this same time. Figure 108 shows the old wooden railroad trestle in the Gorge shortly after its completion and also construction on the canal. The first broad gauge (standard gauge) train ran from Butte to Salt Lake City on October 4, 1890. This eliminated all changing cars and freight transfers at Ogden and Pocatello. Engine "978" was the first standard gauge engine through and immediately following was the first passenger train. Lorenzo Jensen of Brigham City was the conductor.

The Malad Valley Central Railroad Company organized just after the turn of the century and built a railroad from Brigham City to Malad, Idaho. Figure 110 shows the first train, an old diamond stack, arriving at Malad, Idaho, over this railroad on January 1, 1906. This road is now owned by Union Pacific and a train still runs to Malad once a day, leaving Brigham City at 8:00 a.m.

As early as 1892, Brigham City merchants asked the Utah Hot Springs Railway Company to extend their line to Brigham City. At that time this electric railway ran from Ogden to Hot Springs. This line later became part of the Ogden Rapid Company which did extend the electric line to Brigham City in 1910. The line was built along the state highway from Ogden to Brigham where it was routed along the center of Main Street to



Figure 110. This old engine, a diamond stack, puffed from Brigham City to Malad on January 1, 1906, to be the first train to arrive at Malad on the Malad Valley Central Railroad.

Figure 111. The electric street cars on Brigham City's Main Street in 1916. Thomas Slatter was motorman on this line for many years.



the intersection of Main and Forest Streets and then down Forest Street to the O.S.L. Depot. Thomas Slatter was the motorman on this line for many years. A photograph of the electric railway on Brigham City's Maint Street is shown in Figure 111. An electric railway was also built in Cache Valley about this same time and in 1914 the two railroads merged forming the Ogden, Logan, and Idaho Railroad Company. (The O.L. & I. was often called the "Ole".) Two routes were surveyed to join the electric railway from Brigham to Logan. The one gaining much favor was through Box Elder Canyon, Dry Lake, and Wellsville Canyon to Wellsville; however, the route over Collinston hill was the one finally selected. This railroad was completed from Ogden to Logan on October 14, 1915. It was also extended to Preston in the same year. At this time the electric railway route from Brigham to Ogden was moved off the highway to a new grade farther to the west. The route over Collinston hill followed on some of the same road-bed that the Utah Northern (a steam line) built in 1874 and later abandoned when they built through the Bear River Gorge in 1890. Construction on the O.L. & I. in 1915 over Collinston hill is shown in Figure 112. One of the first O.L. & I. freight trains in Logan is shown in Figure 113.

On January 1, 1918, the Ogden, Logan and Idaho Railroad Company (O.L. & I.) changed its name to the Utah-Idaho Central Railroad Company (U.I.C.). The name was changed because of plans to extend the railroad farther into Idaho and also to prevent confusion of freight shipments with the O.S.L.<sup>33</sup>

The U.I.C. was powered by 1600 volts, direct current. This was

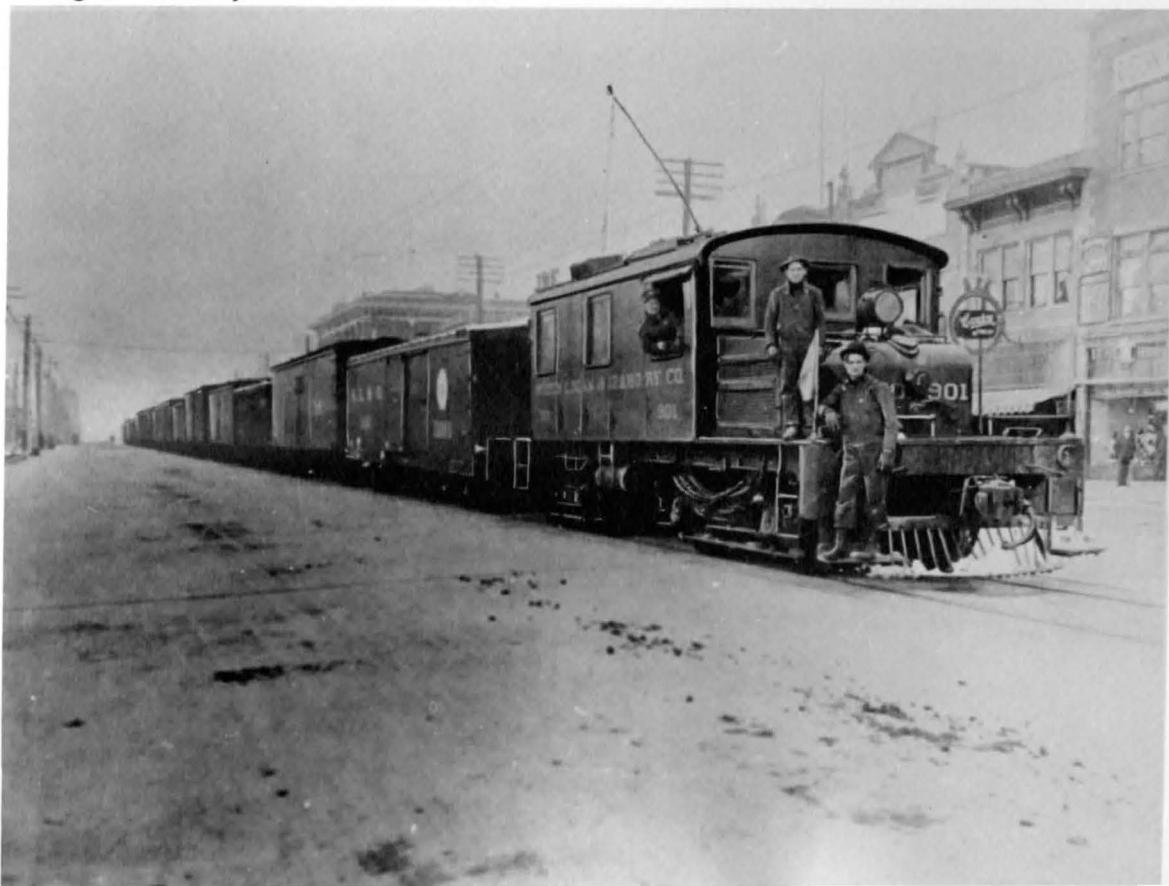
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<sup>33</sup>The Box Elder News, Dec. 28, 1917.



Figure 112. Filling of a ravine on Collinston hill when the O.L. & I. was built from Brigham City to Logan in 1915.

Figure 113. One of the first O.L. & I. freight trains to arrive in Logan. The year was 1916.





supplied from rotary converters located in the Hot Spring and Deweyville substations (and others in Cache Valley). These substations received power from the Utah Power and Light Company 44 kilovolt line, through a bank of transformers. A large aluminum feeder, approximately 1 inch in diameter, paralleled the copper trolley wire and was connected to it occasionally. The rails, which were bonded at each connection with a copper strap, served as the return circuit.

The U.I.C. continued operation until 1947 and in its latter years operated in a state of poor repair. The strikes in the coal industry in 1946 further reduced the meager freight income necessary to sustain operation and the railroad filed with the I.C.C. for abandonment on December 18, 1946. On March 18, 1947, the last train ran from Preston to Ogden and thus brought to a close the longest electric railroad in the West. Soon after, the Hyman-Michaels Company of Chicago began the salvage operation of taking up the rails and dismantling the trolley. The remains of two substations still stand in Box Elder County. These are the Hot Springs and Deweyville substations mentioned earlier. The depot at Willard still stands in good repair and has been converted into a residence. The west face of the Brigham City Depot is still evident in the Owens Garage Building which was constructed around the old depot.

Some Brigham City people who were employed by U.I.C. are as follows: Agents, Mr. Horsley, Theodore Schneider, Platt L. Clark, and C. L. Hansen; Clerks, Mack Housley and Idaho Rosenbaum; Freight Agents, James Valentine and James Nelson; Lineman, Orion Eskelsen; Substation Operator, Cyril Housley, Motormen, Glen Mecham and Cecil Williams; Section Foreman, Leonard Wells.



Figure 114. The Brigham City Airport. Its main runway was recently improved, paved, and extended to 5,000 feet in length.

Figure 115. The Tremonton Airport serves the Bear River Valley.





Figure 116. Small aircraft, such as these at the Tremont Airport, are used by individuals and companies for fast transportation between cities.

Figure 117. These are small aircraft parked at the Brigham City Airport.



### Air Transportation

Brigham City and Tremonton both have modern airports and landing strips designed to serve the smaller aircraft. The Brigham City runway is 5,000 feet long and will accommodate most modern day aircraft except the faster jets. John Weir has been the manager of the Brigham Airport for many years. The Brigham Airport is seen in Figure 114 and the Tremonton in Figure 115. Emergency landing strips are maintained by the F.A.A. at Promontory Point and Lucin. These locations with their associated beacons are shown in the Communications Section in Figures 122 and 124.

### Communication

#### Early Communication and the Telegraph

Early communication in Box Elder County was carried by wagon train and horseback. Typical wagon trains of the early days are shown in Figures 80 and 90. Later the Pony Express and the Stages considerably increased the speed of communication. By the early 1860's a transcontinental telegraph line had been completed. On May 10, 1869, the telegraph carried to the nation the exact moment of the driving of the golden spike at Promontory. The telegraph line that paralleled the first railroad as it was completed can be seen clearly in Figure 88 and also in some of the other early railroad photographs. The poles carried one small cross arm and appeared to be only a two wire line.

The Deseret Telegraph Company was organized in the early 1860's by President Brigham Young and its lines were extended from St. George, Utah, to Paris, Idaho. According to the E. S. Glover "Bird's Eye View



of Brigham City"<sup>34</sup> the Deseret Telegraph Office in Brigham City was located in a building adjacent to the Tithing Office on Young Street in 1875. (As located today this site would be approximately 68 South First West.) The telegraph line ran north to Forest Street and then down Forest Street to the U.N.R.R. Depot where it joined the line that paralleled the railroad. The Brigham Bugler of January 10, 1891, reported somewhat conflicting information as follows:

At last Brigham has an up-town telegraph office. A Deseret Office was opened this week in The Bugler Building. It is in the center of town, half a block west of the Bank of Brigham City. Messages accepted to all points in and out of Utah. Up to now the telegraphic business here has been extremely unsatisfactory. The Western Union office was three-quarters of a mile from town.

This indicates that Western Union was probably located in the Depot west of town at this time and that the Deseret Telegraph Company may have discontinued their service here for a period prior to that time.

### The Telephone

The first telephone company to serve Brigham City was the Rocky Mountain Bell Telephone Company who received a franchise to serve the city on December 3, 1889, and installed the first telephone, a toll station, in Dr. J. D. Wade's office. When John E. Baird became toll agent the phone was moved into the library. Mr. Baird answered the phone and carried messages to the people in town.<sup>35</sup> The following tax assessed in 1892 gives a comparison of the telephone and telegraph

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<sup>34</sup>The E. S. Glover "Bird's Eye View of Brigham City" is a drawing of Brigham City made in 1875 as it appeared from the mountain east of Brigham City and shows in great detail the locations of buildings in the city in that day. One of the original prints is located in the Relic Hall in Brigham City.

<sup>35</sup>Information from Baird Family Records in possession of Florence Lee Baird, Brigham City.

companies operating in this vicinity and their relative holdings:

Western Union, office furniture, wires, etc., \$18,279.35  
Deseret Telegraph Co., office furniture, wire, etc., \$309.50  
Rocky Mtn. Bell Telephone, telephones, wire, etc., \$822.45

The office of the Rocky Mountain Bell Telephone Company as it appeared about 1903 is shown in Figure 118.

The Utah Independent Telephone Company also had lines and a switchboard in Brigham City. They applied for a franchise on April 30, 1905. The franchise was granted because it was felt that Rocky Mountain Bell was not giving adequate service. Aurilla Hansen served as an operator on the switchboards of both companies and said there was no interconnection between the two. This made it awkward for the people of the community to communicate unless they were subscribers with the same company. The independent company finally withdrew alleviating this problem. Since that time Brigham City has been served by only one company. The building shown in Figure 119 (now occupied by the B.P.O.E.) was the office of the Mountain States Telephone and Telegraph Company in Brigham City for many years. The front part was the office and the switchboards were to the rear. As the demand for telephones increased more, switchboard positions were added in the building until it became necessary to move the business office. This was moved to 142 South Main Street for several years and soon a new telephone building was built at 45 East Second South. This building was occupied early in 1960 by the office and dialing equipment and is shown as it appears today (1966) in Figure 120.

On February 6, 1960, the 5,394 telephones in the Brigham City area were "cut over" to dial service. At 12:00 midnight of February 6,



Figure 118. The Rocky Mountain Bell Telephone Co. in about 1903. Left to right, Jarvis Koford, boy; Sarah Mathias, operator; Helena Carter, operator; John E. Baird, manager; Rosa Johansen, operator; Rena Baird, chief operator; C. Elias Jensen, lineman. Notice the old breast microphones and earphones used by the operators and the climbing spikes on the lineman. The location is 28 South Main, Brigham City.

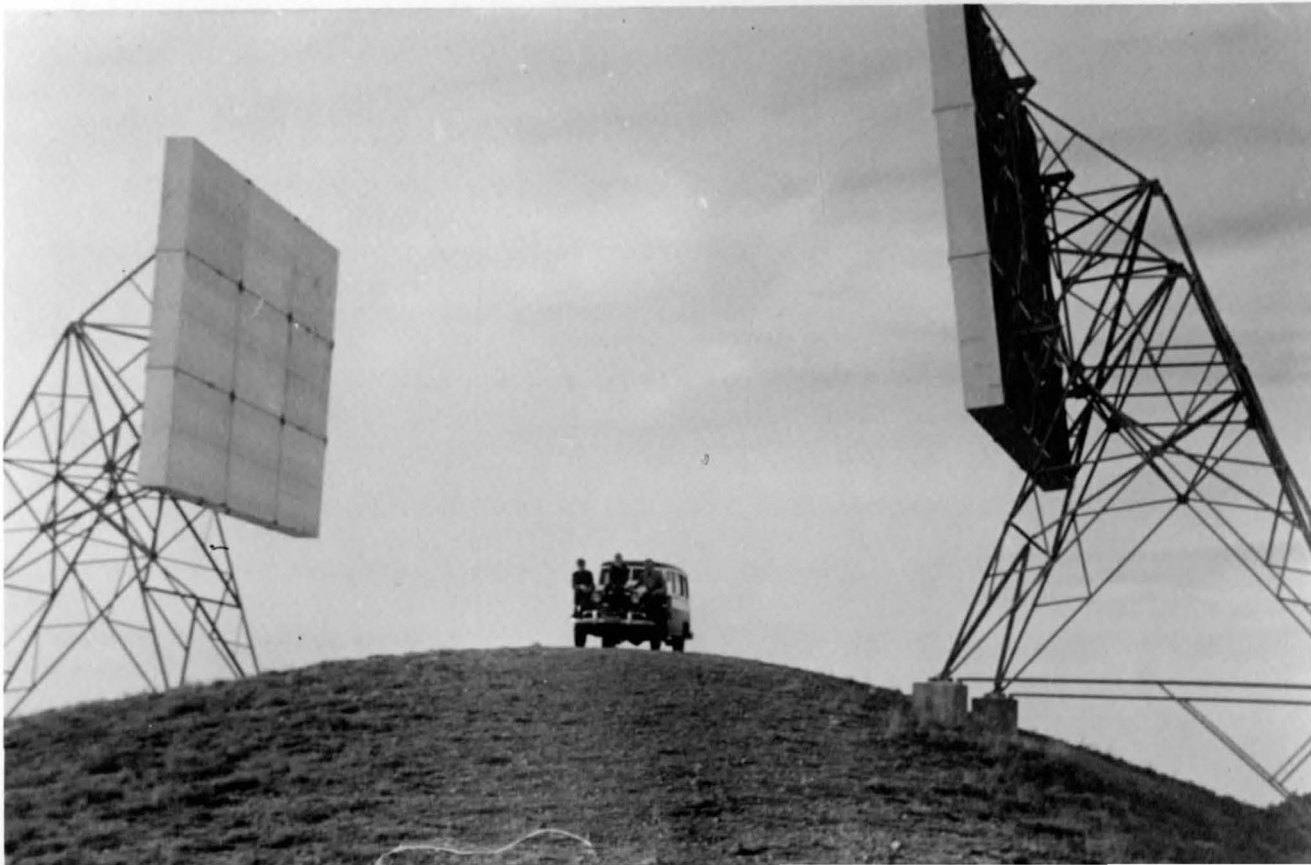
Figure 119. This building at 20 East 1st South in Brigham City, now occupied by B.P.O.E., was the telephone office for many years and housed the last manually operated switchboards discontinued in 1960.





Figure 120. The new telephone building in Brigham City became operational in 1960 when the city converted to dial. The microwave tower was built in 1965 and communicates with Cache Valley and on north via the reflectors shown below.

Figure 121. These passive reflectors located on the mountain top east of Brigham reflect the microwave circuits from Brigham to Cache Valley. The jeep in the center gives some idea of their size.





1960, the large cables tying the system to the old switchboards were cut with large cable cutters, switching was complete, and the dial system in the new building became operational by 12:01 a.m. Mayor Ruel M. Eskelsen, with some ceremony, made the first call on the new dial system. Gone forever was the familiar "number please"; automation had taken over. The entire program of conversion to dial in Brigham City cost the Mountain States Telephone and Telegraph Company \$800,000. Further automation of the telephone system, direct distance dialing, was instigated in Brigham City on June 2, 1963.

The long distance lines that span the country require occasional amplification to keep the voice currents up to intelligible levels. Many circuits are carried simultaneously over each wire. This is accomplished by carrier current techniques, each circuit having its own frequency. A repeater or amplifying station on the long distance lines is located by the highway just south of Bear River City, shown as it appears today (1966) in Figure 126. This repeater was built in about 1940 by Western Electric. Oscar Nitz was the engineer in charge of installation.

The telephone company also is using microwave for long distance circuits. One of their microwave stations is located on the hill about 2 miles northwest of Garland and is shown in Figure 127. This station relays to the Hot Springs station on the south and into Idaho on the north.

Tremonton and vicinity and as far west as Snowville is served by the Bear River Telephone Company. This is an independent company which has modern dialing equipment to serve its 2700 subscribers. Main offices are in Tremonton.

The Park Valley and Rosette areas of Box Elder County have had some telephone service since 1923 when 34 residents of the area formed the Park Valley-Rosette Telephone Company, Inc. Over the years the lines were not kept up and service deteriorated. In 1946 when rural electric power came to this area it interfered so badly with the few remaining phones that the system was abandoned entirely.<sup>36</sup>

The Silver Beehive Telephone Company of Grouse Creek, is currently providing service to the Grouse Creek area. The president of this company, Arthur W. Brothers, is planning to extend service to the Park Valley and Rosette area by late 1966. This system is connected to the Mountain States Telephone and Telegraph Company by microwave and began offering long distance service on January 7, 1966.

A microwave system was installed in 1965 by Mountain States Telephone in connection with their new office in Brigham City. As shown in Figure 120, the parabolic antenna on the east side of the metal tower communicates with the Logan office via the passive reflectors on top of the mountain east of Brigham City. These reflectors are shown in Figure 121, and require no power for their operation since they simply serve as mirrors for the microwaves.

#### Miscellaneous Radio Services

Various radio services have operated in Box Elder County in recent years. Some of the more prominent ones are operated by the Federal Aviation Agency (F.A.A.) as aids to air traffic control and aerial navigation. The Promontory Point F.A.A. station shown in

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<sup>36</sup>The Box Elder Journal, April 7, 1966, p. 8.

Figure 122, broadcasts the letters PPU in morse code on a frequency of 375 kilocycles. The Lucin station, located on the flats about 4 miles northeast of Lucin is shown in Figure 123 and broadcasts the letters LU in morse code on a frequency of 302 kilocycles. These two stations are not currently operating and appear to have been discontinued. The Corinne station which broadcasts the letters COU on a frequency of 344 kilocycles is operating at the time of this writing (1966). These low frequency stations have been operated as aids to aerial navigation.

A few miles northwest of the golden spike monument at Promontory Summit is located a three-way station operated by F.A.A. that picks up information from Ashton and Boise, Idaho, and also from Battle Mountain, Nevada. This is relayed to Salt Lake through the microwave repeater located at West Corinne, shown in Figure 125.

### Radio Broadcasting

Radio Station KBUH in Brigham City is the only standard broadcasting station in Box Elder County. It operates on 800 kilocycles with a radiated power of 250 watts. Built in 1947 by S. L. Stevens, Sr., KBUH has been owned and operated by Wade M. Ebeling since 1949. The KBUH transmitter is a Gates BC-1T which shunt feeds a 222 foot top loaded tower. This station is located at 948 West Forest Street and is shown as it appears today (1966) in Figure 128.



Figure 122. F.A.A. radio station (PPU, 375 kilocycles) and beacon at Promontory Point. This station was used for air navigation purposes but is no longer in service. Beacon served emergency landing strip.

Figure 123. F.A.A. radio station (LU, 302 kilocycles) located near Lucin. This station is no longer used but for a number of years served as an air navigation station.







Figure 124. F.A.A. radio station (LCU, 115.6 kilocycles) and emergency landing field located at Lucin in western Box Elder County.

Figure 125. F.A.A. Flight Service Station is located at West Corinne and is a microwave repeater for their air traffic control system.





Figure 126. This telephone repeater is located near Bear River City. These windowless buildings located at various locations across the country contain amplifiers to boost voice signals on the wire lines.

Figure 127. This Mountain States Telephone Company microwave repeater is located near Garland. This is the link between Hot Springs on the south and into Idaho on the north.

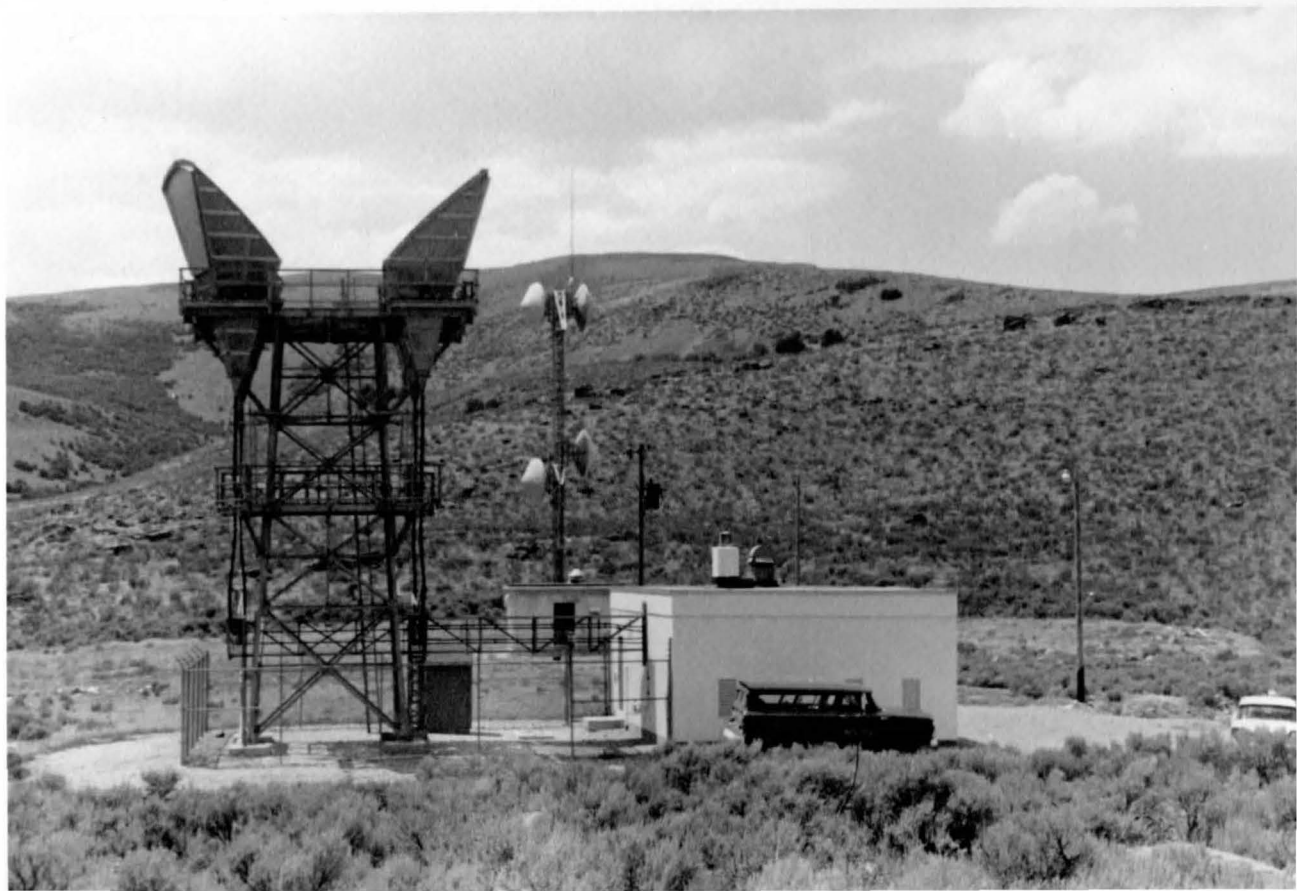




Figure 128. Radio Broadcasting Station KBUH located in Brigham City. KBUH is the only standard broadcasting station in Box Elder County and operates on 800 kilocycles with a radiated power of 250 watts.

## CONCLUSIONS

The purpose of this study was threefold--to produce a photographic record of selected industries in Box Elder County, Utah, to gather interesting and pertinent facts concerning these industries, and to prepare the photographic record so that it might be used to teach something about industry in a secondary school industrial arts program. The report of the study seems to give evidence that the purpose has been accomplished satisfactorily. The nature of the study does not lend itself readily to drawing profound conclusions as would be the case if an attempt had been made to prove some important points. However, the results of the study provide a sound basis for the following conclusions:

A wealth of photographs and information can be found that are useful to industrial arts teachers in presenting important phases of industry to their students.

Industries currently operating are generally quite willing to share photographs and information as a public relations gesture. To obtain early day photographs and information requires much more effort.

A great deal more information than is presented in this report could be written about any of the larger industries such as railroads, mining, and electric light and power that have grown and developed in Box Elder County.

The photographs and information compiled in this report should be of interest and benefit to a number of civic, religious, or semi-religious and social organizations. Some of these are: The Chamber of Commerce,



the Church of Jesus Christ of Latter-day Saints, the Daughters of Utah Pioneers, and the Sons of Utah Pioneers. These organizations could use the information for publicity, public relations, as the basis for informative lectures, or for adding to their fund of historical knowledge.

It has been said that a picture is worth a thousand words. As far as historical research is concerned, this is perhaps an under-statement. The historian searches and researches for the sake of accuracy in his writings, but photographs record things exactly as they were and are, without question. The record is altered only as time may have faded the image or as minute details disappear into the grain of the print when it is viewed under a magnifying lens.

An insight into the development of industry in Box Elder County was gained, which in many ways is probably typical of the growth of industry throughout the United States. A great appreciation was developed for the vast expanse of Box Elder County, for its exciting past, and for its serene beauty. Missing portions in the history of some industries were found and fitted together. The discovery of old photographs, providing "windows into the past," was thrilling, to say the least. The camera, in an instant, had captured a scene exactly as it was then. The printed photograph, if it survived the ravages of time, would display its truths to later generations.

## RECOMMENDATIONS

It is recommended that this study be continued and extended. Since time was a limiting factor, there were many sources that could not be searched. Undoubtedly many more old photographs could be found among residents of the various communities throughout the county as well as in Brigham City and Tremonton. Although many were visited, there were many who were not visited because of the time limitation. Any of the various industries such as Electric Light and Power, Manufacturing, Minerals, Transportation, and Communication could be pursued in depth as individual studies. It is also proposed that this same type of study be done in other geographic locations.

It is recommended that industrial arts teachers at the Intermountain School and throughout the county become familiar with this work. By so doing, they can enrich the presentation of industry to their students. Industries near at hand can be shown in their historical setting and perhaps field trips to some of the places shown on these pages will help to relate the growth and development of industry over the past century.

Color slides were taken of many of the current industries of Box Elder County as well as the remains of some of the past industries. It is recommended that they be reproduced for use in industrial arts classrooms as well as by other groups who may be interested. Originals (or copies of the originals) of the old photographs could also be reproduced for projection to help show the growth and development of industry in Box Elder County.

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## APPENDIXES

Victor J. Holt, Brigham City

Victor J. Holt

Victor J. Holt

Author

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Appendix A-- Photograph Credits

<u>Figure</u>	<u>Courtesy of:</u>	<u>Photographer</u>
1.		Author
2.		Author
3.	J. Francis Sheffield, Salt Lake City	A. W. Compton
4.		Author
5.	Lloyd Gunther, Brigham City, Utah	Unknown
6.	Lloyd Gunther, Brigham City, Utah	Unknown
7.		Author
8.	Box Elder News-Journal, Brigham City	Unknown
9.		Author
10.		Author
11.		Author
12.		Author
13.		Author
14.	Savilla R. Hunsaker, Brigham City	Unknown
15.	Mathew J. Compton, Brigham City	A. W. Compton
16.		Author
17.	Victor J. Bott, Brigham City	Unknown
18.	Victor J. Bott	Unknown
19.	Victor J. Bott	Unknown
20.		Author
21.		Author
22.	Utah Historical Society, Salt Lake	Unknown
23.		Author
24.	Utah Historical Society, Salt Lake	Unknown
25.	Utah Historical Society, Salt Lake	Unknown
26.		Author
27.		Author
28.		Author
29.		Author
30.	J. Francis Sheffield, Salt Lake City	A. W. Compton
31.	V. K. Pierce, Brigham City, Utah	A. W. Compton
32.		Author
33.		Author
34.		Author
35.	Philbert C. Lind, Lynn, Utah	Unknown
36.		Author
37.		Author
38.		Author
39.		Author
40.		Author

<u>Figure</u>	<u>Courtesy of:</u>	<u>Photographer</u>
41.	Mathew J. Compton, Brigham City, Utah	A. W. Compton
42.		Author
43.	Mathew J. Compton	A. W. Compton
44.		Author
45.	Orion Eskelsen, Brigham City, Utah	Orion Eskelsen
46.	Orion Eskelsen, " "	" "
47.	Brigham City Corporation, Brigham City	A. W. Compton
48.		Author
49.		Author
50.	Mrs. Lorenzo Bott, Brigham City, Utah	A. W. Compton
51.		Author
52.		Author
53.	Mrs. Lorenzo Bott	Unknown
54.	Daughters of Utah Pioneers, Brigham City	A. W. Compton
55.	Elias P. Forsgren, Brigham City	H. E. Johansen
56.	Elias P. Forsgren, Brigham City	Unknown
57.	Elias P. Forsgren " "	Unknown
58.		Unknown
59.		Author
60.	Karen Hansen, Logan, Utah	Unknown
61.		Author
62.	Frank Holman, Brigham City, Utah	A. W. Compton
63.		Author
64.	Don Call, Brigham City, Utah	Unknown
65.		Author
66.	Utah Historical Society, Salt Lake City	Unknown
67.	Mathew J. Compton, Brigham City	Unknown
68.	Mathew J. Compton, " "	A. W. Compton
69.		Author
70.		Author
71.	Daughters of Pioneers, Brigham City	Unknown
72.		Author
73.		Author
74.		Author
75.		Author
76.		Author
77.	Box Elder News-Journal, Brigham City	Unknown
78.	Box Elder News-Journal	Unknown
79.	Box Elder News-Journal	Unknown
80.	Bernice G. Anderson, Corinne, Utah	Unknown

<u>Figure</u>	<u>Courtesy of:</u>	<u>Photographer</u>
81.	Mrs. Lorenzo Bott, Brigham City, Utah	Unknown
82.	Daughters of Pioneers, Brigham City	Unknown
83.	Mrs. Lorenzo Bott, Brigham City	Unknown
84.	Mathew J. Compton, Brigham City	A. W. Compton
85.		Author
86.	Bernice G. Anderson, Corinne, Utah	Bennett
87.	Bernice G. Anderson " "	Unknown
88.	Utah Historical Society, Salt Lake City	Unknown
89.	Utah Historical Society " "	Unknown
90.	Utah Historical Society " "	Unknown
91.	Utah Historical Society " "	C. R. Savage
92.	Sons of Utah Pioneers, Brigham City	C. R. Savage
93.		Unknown
94.	Utah Historical Society	Unknown
95.		Author
96.	Sons of Utah Pioneers	Unknown
97.		Author
98.	Utah Historical Society, Salt Lake City	A. J. Russell
99.		Author
100.		Author
101.	Evan Gee, Brigham City	Unknown
102.	Utah Historical Society, Salt Lake City	Unknown
103.	Utah Historical Society " "	Unknown
104.	Utah Historical Society " "	Unknown
105.	Elias P. Forsgren, Brigham City	Unknown
106.		Author
107.		Author
108.	Don Call, Brigham City	Unknown
109.		Unknown
110.	Utah Historical Society, Salt Lake City	Unknown
111.	Mathew J. Compton	A. W. Compton
112.	Utah Historical Society, Salt Lake City	Unknown
113.	Utah Historical Society " "	Unknown
114.		Author
115.		Author
116.		Author
117.		Author
118.	Florence Lee Baird, Brigham City	Unknown
119.		Author
120.		Author
121.		Author
122.		Author



<u>Figure</u>	<u>Courtesy of:</u>	<u>Photographer</u>
123.		Author
124.		Author
125.		Author
126.		Author
127.		Author
128.		Author

Appendix B -- FormsCalendar of Searches

A sample of this form is shown on page 137. This form was used to keep an account of each search and its results. If a search produced no pertinent information or photographs, nil was written in the results column. If the search was successful w/s was indicated in the results column together with a number. The w/s was an abbreviation for Work Sheet and the number cross referenced with the search number on the Work Sheet Form on which was recorded the information obtained as a result of the search.

Work Sheet

A sample of this form is shown on page 136. This form was used to record information as it was gathered from each successful search. The search number on this form cross referenced with the search number on the Calendar of Searches. The Work Sheet proved to be valuable to the researcher in providing for a systematic gathering of information and in preventing the omission of needed information as each search proceeded.

Calling Card

This card, shown on page 138, was left with individuals contacted, to remind them of the research being done and as a ready source of the telephone number and address of the researcher. On several occasions people called back and indicated that they had found an old photograph or information that proved to be useful in this work.

## WORK SHEET

Classification \_\_\_\_\_ Date of Search \_\_\_\_\_  
Source of Informant \_\_\_\_\_  
Enclosure No. \_\_\_\_\_ Search No. \_\_\_\_\_ Vol. \_\_\_\_\_ Page \_\_\_\_\_  
Name of Industry or Company \_\_\_\_\_  
Location \_\_\_\_\_  
Product(s) \_\_\_\_\_  
Number of employees \_\_\_\_\_  
Years of operation \_\_\_\_\_  
Ownership of Industry \_\_\_\_\_  
Production information \_\_\_\_\_  
Key employees \_\_\_\_\_  
Permission from source to include information in thesis \_\_\_\_\_  
Industry founded by \_\_\_\_\_  
Possible source of photographs \_\_\_\_\_

Notes - Early History - Recent History - Interesting Events - etc.

## CALENDAR OF SEARCHES

[illegible]



SEARCH FOR OLD PHOTOGRAPHS AND INFORMATION  
concerning

Industries of Brigham City and Box Elder  
County. Old Co-op Industries, Grist and  
Flour Mills, Sugar Refining, Mining and  
Minerals, Electric Light & Power, Cement  
Plant, Railroads, Dairy Manufacturing, etc.

Phone or visit:	Robert E. Jensen
	444 North 4th East
Phone: 723-6294	Brigham City, Utah

## VITA

Robert E. Jensen

Candidate for the Degree of  
Master of Science

Thesis: A Photographic Record of Selected Industries of Box Elder County

Major Field: Industrial and Technical Education

Biographical Information:

Personal Data: Born at Brigham City, Utah, September 3, 1926, son of Elijah and Aurilla Hansen Jensen; married Gloria Hansen on July 27, 1948; six children--Alan, Kevin, Mark, Von, Quinn, and Kathleen.

Education: Attended elementary school at the Central School in Brigham City, Utah, and graduated from Box Elder High School in 1944. Attended Weber State College in 1946 and 1947; received the Bachelor of Science degree from Utah State University with a major in Industrial Arts Education in 1953; completed the requirements for the Master of Science degree at Utah State University in 1967.

Professional Experience: In 1953 taught electricity and radio at South High School in Salt Lake City; 1954-56 taught electricity for the Bureau of Indian Affairs at Intermountain School in Brigham City, Utah; 1956 promoted to Vocational Supervisor, served in that position until present time.

Industrial Experience: 1944 and 1947-51 served in the Electrical Department of Brigham City Corporation as a Power House Operating Engineer.